Selbyana 5(1):61-93. 1978.

MISCELLANEOUS TRANSFERS AND NEW SPECIES OF NEOTROPICAL GESNERIACEAE

*Hans Wiehler**

A study of plant material recently brought into cultivation, biosystematic work on generic relationships, and herbarium and literature research on the typification of neotropical Gesneriaceae necessitate the generic transfer of the following species, in alphabetical order:

1. **Codonanthopsis dissimulata** (H. E. Moore) Wiehler, comb. nov.
Codonanthe dissimulata H. E. Moore, Baileya 19(1):25. 1973.

TYPE: *M. H. Stone 1143* (HOLOTYPE: BH). TYPE LOCALITY: Peru: Iquitos.

DISTRIBUTION: Peru: Loreto, Huanuco; Brazil: Acre, Amazonas; Venezuela: Amazonas, Delta Amacuro; Guyana.

In a synopsis of *Codonanthe* (Mart.) Hanst., Moore (1973a) proposed a union of the small genus *Codonanthopsis* Mansf. with *Codonanthe*, and described a new species, *Codonanthe dissimulata*, from material in cultivation at Cornell University. A study of generic relationships in the neotropical Gesneriaceae (Wiehler, 1979) reveals, however, that the differences between these two taxa are on the generic and not on the sectional level. *Codonanthe* and *Codonanthopsis* differ consistently: 1) in plant habit: the stiff and ascending branches of the species of *Codonanthopsis* have large (ca. 10-15 × 4-6 cm) and fleshy, strongly anisophyllous leaves, of which the smaller of the pair is typically stipule-like and early caducous, while the species of *Codonanthe* are vine-like, with small, equal or subequal leaves; 2) the base chromosome number in *Codonanthopsis* is $x = 9$, but in *Codonanthe* $x = 8$; 3) the connective of the anther cells is narrow in all species of *Codonanthopsis*, as in the rest of the Gesnerioideae, but the trade mark of *Codonanthe* is a peculiar broad connective, spatially separating the two thecae.

The chromosome number of the type collection of *Codonanthopsis dissimulata* is $n = 9$. The flowers of this epiphytic species produced only cleistogamous corollas at Cornell University, as shown in the type illustration. In sunny Florida clones of the type collection develop normal corollas, as illustrated on page 19 in this volume.

2. **Corytoplectus pulcher** (N. E. Brown) Wiehler, comb. nov.
Hypocyrta pulchra N. E. Brown, Gardener's Chronicle Ser. III, 16:244. 1894. Bot. Mag. 122:t. 7468. 1896.
Corytoplectus congestus (Lind. ex Hanst.) Wiehler, Phytologia 27(5): 313. 1973, pro parte sensu Wiehler, 1973.

TYPE: *Burke s.n.* (HOLOTYPE: K). This sheet bears the annotation: "Type specimen. Colombia. Burke. From J. Veitch & Sons, July 28, 1893." K has also a clonotype (= *Hort. Kew.*, dated June 13, 1895) of the Burke - Veitch collection from which the illustration in Bot. Mag. t. 7468 was prepared.

DISTRIBUTION: Colombia and Ecuador.

Based on an inspection of herbarium material, I had placed *Hypocyrta pulchra* in the synonomy of *Corytoplectus congestus* in 1973. However, plants recently brought into cultivation from the Cordillera de Cutucú in Ecuador [*Madison et al. 3328* (SEL) and SEL greenhouse acc. nos. W-2412,

*The Marie Selby Botanical Gardens, 800 S. Palm Ave., Sarasota, FL 33577, U.S.A.

W-2413, W-2416] agree with the description and illustration of *H. pulchra* and differ distinctly from the live collections of *C. congestus* from several areas in Venezuela in cultivation at SEL. There is now no doubt that *Corytoplectus pulcher* is a valid species. In contrast to *C. congestus*, the stems, petioles and leaves in *C. pulcher* are thicker and more succulent, the calyx is pleated, and the corolla is larger, fleshier, and of a different shape, caused by a ventral pouch. All these features disappear in dried and pressed material. The new collection with its compact growth habit, variegated leaves, orange-red calyces, yellow corollas, and black berries is of horticultural value.

An examination of the holotypes of the next four species revealed that they did not belong to the genera to which they were attributed by their authors, or by subsequent transferring authors:

3. **Heppiella guazumaefolia** (Benth.) Wiehler, comb. nov.
Gesnera guazumaefolia Benth., Pl. Hartweg. 147. 1844.
Kohleria guazumaefolia (Benth.) Regel, Gartenflora 3:348. 1854; (cf. Fritsch, *in* Bot. Jahrb. Syst. 50:416. 1913).
Rechsteineria guazumaefolia (Benth.) Kuntze, Rev. Gen. Pl. 2:474. 1891.

TYPE: *Hartweg 825* (HOLOTYPE: K; ISOTYPES: BM, CGE, K).

DISTRIBUTION: Southwestern Ecuador, Province of El Oro.

This species, apparently not recollected in this century, fits perfectly well in the genus *Heppiella*, but is out of place in the other genera cited in the synonomy on account of its ring-shaped nectary.

4. **Kohleria anisophylla** (Fritsch) Wiehler, comb. nov.
Diastema anisophyllum Fritsch, Bot. Jahrb. Syst. 50:408. 1913 ("1914").

TYPE: *F. C. Lehmann 5843* (LECTOTYPE: K; ISOTYPE: K; HOLOTYPE: destroyed at B in 1943).

DISTRIBUTION: Colombia: Nariño; Ecuador: Carchi.

Fritsch noted the affinity of this low-growing species to *Kohleria*, but attributed it to *Diastema* because of its habit. A study of the type material makes it clear that this species belongs in all aspects, including the red corolla, to *Kohleria;* it is completely foreign in *Diastema.* I did not find type material of var. *quitense* Fritsch at W. This variety is, therefore, not transferred here. *Kohleria anisophylla* has recently been found in the Province of Carchi, Ecuador [*C. & J. Luer & A. Hirtz 2672* (SEL)].

5. **Kohleria inaequalis** (Benth.) Wiehler, comb. nov.
Gesneria inaequalis Benth., Pl. Hartweg. 230. 1846.
Isoloma inaequale (Benth.) Benth. ex Jackson, Ind. Kew. 1:1238. 1895; (cf. Bentham & Hooker, Gen. Pl. 2:1002. 1876).

TYPE: *Hartweg s.n.* (HOLOTYPE: K).

DISTRIBUTION: Colombia: Cauca: "Andes of Popayan towards the Pacific" (type sheet).

This rare species has, in a sense, always been in *Kohleria*, since both *Gesneria* Mart. (or *Gesnera* Mart.) and *Isoloma* Benth. are synonyms of *Kohleria* Regel. It is a close relative of *K. anisophylla* and *K. villosa.*

6. **Kohleria villosa** (Fritsch) Wiehler, comb. nov.
Diastema villosum Fritsch, Bot. Jahrb. Syst. 50:407. 1913 ("1914").

TYPE: *Jameson s.n.* (LECTOTYPE: W; ISOTYPE: P).

Nematanthus? erianthus Benth., Pl. Hartweg. 231. 1846.
TYPE: *Hartweg s.n.* (HOLOTYPE: K).
Columnea eriantha (Benth.) Hanst., Linnaea 34:391. 1865.
Non *Kohleria eriantha* (Benth.) Hanst., Linnaea 34:442. 1865.
Diastema platylomatum Donn. Smith, Bot. Gaz. (Crawfordsville) 61: 381. 1916.
TYPE: *F. C. Lehmann 409a* (LECTOTYPE: US).
Kohleria platylomata (Donn. Smith) Wiehler, Phytologia 27(5):327. 1973.

DISTRIBUTION: Ecuador: Pichincha, Cotopaxi, Bolivar, Tungurahua.

The true identity of *Diastema villosum* was discovered on a recent trip to Vienna, several years after the publication of the combination *Kohleria platylomata.* I introduced this species to cultivation in 1972.

7. **Nematanthus maculatus** (Fritsch) Wiehler, comb. nov. (Figure 7)
Hypocyrta maculata Fritsch, Beiblatt, Bot. Jahrb. Syst. 65:10. 1900.

TYPE: *Mosén 2916* (HOLOTYPE: S, not seen).

DISTRIBUTION: Brazil: Sao Paulo.

Examination of a recent live collection of this species [*A. & W. Esworthy s.n.* (SEL), greenhouse acc. no. W-2494] from the vicinity of the type locality near Santos indicates this transfer. The two genera were united by Moore (1973b) who at that time transferred all species of this group then in cultivation.

8. **Neomortonia nummularia** (Hanst.) Wiehler, comb. nov.
Hypocyrta nummularia Hanst., Linnaea 34:381. 1865.

TYPE: *Wendland 1272* (HOLOTYPE: GOET).

Columnea nummularia (Hanst.) Kuntze, Rev. Gen. 2:472. 1891.
Alloplectus nummularia (Hanst.) Wiehler, Baileya 18(4):136. 1972 ("1971").
Episcia truncicola T. S. Brandegee, Univ. Calif. Publ. Bot. 6(4):64. 1914.
TYPE: *Purpus 7008* (HOLOTYPE: UC).

DISTRIBUTION: Panama: Colón, Chiriquí; Costa Rica; Guatemala; Mexico: Chiapas.

The true affinity of Hanstein's *Hypocyrta nummularia* ($n = 9$) to a particular genus of the neotropical Gesneriaceae is somewhat problematic. It was attributed originally to *Hypocyrta* on account of its "hypocyrta"-shaped (= pouched), red, ornithophilous corolla. In 1972 I removed this species from the *Hypocyrta-Nematanthus* complex ($n = 8$, native to SE Brazil), because it differed from this taxon by its geographical distribution, by its chromosome number and genetic affinity based on hybridization experiments, and by the absence of a leaf hypodermis. This epiphytic species was at that time transferred to *Alloplectus*, together with another species removed

from *Hypocyrta* [*A. teuscheri* (Raymond) Wiehler]. It did not (and still does not) appear to be justifiable to erect a monotypic genus for Hanstein's species which differs from the capsular-fruited genus *Alloplectus* by its berry-fruit. The establishment of the monotypic genus *Neomortonia* in 1975 offered a better placement for *Hypocyrta nummularia*, for this species and *N. rosea* share a nearly identical geographical distribution, occupy the same habitat as epiphytes, have the same thin-stemmed, pendent habit, possess the same type and color of fruit — a bright orange berry, and agree in chromosome number (Wiehler, 1975). They differ in the shape of the corolla, but the same diversity in corolla shapes (a white, infundibular, euglossophilous corolla with a wide limb versus a red, ornithophilous corolla with a ventral pouch, a constricted throat and a narrow limb) occurs also in other gesneriad genera of the neotropics: *Drymonia*, *Gasteranthus*, and *Paradrymonia*. The placement of Hanstein's species in *Neomortonia* appears to be at present the most satisfactory solution. Hybrids between the two orange-berried species have not yet been established.

9. **Phinaea divaricata** (Poeppig) Wiehler, comb. nov.
Trevirana divaricata Poeppig, *in* Poeppig & Endl., Nov. Gen. et Sp. Pl. 3:9. 1840.
Diastema divaricatum (Poeppig) Benth. ex Walp., Repert. Bot. Syst. 6:403. 1847.

TYPE: *Poeppig 1629* (HOLOTYPE: W; ISOTYPES: BM, GOET, P).

DISTRIBUTION: Peru: Huanuco.

An inspection of the types cited makes it clear that this species belongs to *Phinaea*, and that it agrees with a collection in cultivation in the United States, *R. E. Lee 6808* (BH, SEL), found near Tingo Maria, Peru, in 1968. The type locality, Cassapi, is only about 100 km SE of Tingo Maria.

The following two species include in their synonomy names presently used for two cultivated gesneriads: *Sinningia warscewiczii* and *S. claybergiana*. The name *Besleria incarnata* Aubl. has remained in relative obscurity for two hundred years. Its transfer to *Rechsteineria* Regel took place only in 1958, more than one hundred years after the establishment of the genus. With the absorbtion of *Rechsteineria* into *Sinningia* Nees several years ago, Aublet's species became *Sinningia incarnata*. It has now become apparent that *Sinningia incarnata* is the most widely distributed species of the neotropical Gesneriaceae, from central Argentina to central Mexico, covering every country in between.

The obscurity of the specific epithet *incarnata* is partially due to the regional or national isolation which has often beset floristic studies of the neotropics in the past. For instance, a plant taxonomist working with new plant species from Central America often did not (or did not have a chance to) compare his material with collections from adjoining areas, in this case Colombia, or the Andean region, or all tropical South America. The botany of French Guiana, the type locality of *Besleria incarnata*, has been in comparative isolation until recently. Hanstein, for instance, did not list Aublet's species in his long catalogue of *Gesnera* Mart. (a synonym of *Sinningia*, pro parte*), but cited it under "Obscure Species of the Tribe Beslerieae." In-

*_Gesnera_ Mart. (also spelled _Gesneria_) included species of _Rechsteineria_, _Kohleria_, _Heppiella_, etc; it is a later homonym but not a synonym of _Gesneria_ L.

stead, Hanstein described as new species a long series of geographical or ecological variants now being reduced to the synonomy of *Sinningia incarnata.* Fritsch also did not mention this species in his treatment of *Corytholoma* Decaisne (another synonym for *Rechsteineria* and *Sinningia*) and *Rechsteineria.*

A study of live material at SEL from Mexico, Guatemala, Panama, Colombia, Venezuela, Guyana, and Mato Grosso, Brazil, provided the first indication that *Sinningia warszewiczii, Rechsteineria stachidifolia, R. caracasana, S. incarnata,* and *S. stricta* all belonged into the same species complex. Their similarities were much more obvious than their minor differences. There exists some regional variation in the degree of connation of the calyx lobes, in the shape of these lobes from acute to acuminate, and in the size and width of the typically red (rarely yellow) corolla tube. There is also some geographical and ecological variation in the width and indument of the leaves. When these differences within this species complex are compared with other species of the genus *Sinningia,* the variations appear minor, and the unity of this species complex becomes apparent. Twenty-three heterotypic synonyms may be listed for *Sinningia incarnata,* an indication of the abundance of this species in the neotropics.

Sinningia incarnata has the following characteristics: Plants of open, sun-exposed fields and slopes, the stems up to 1-1.5 m tall, the opposite-decussate leaves in pairs or ternate, elliptic, ca. 8-12 × 3-4 cm, crenate, the inflorescences usually terminal (axillary in distrubed or shaded plants), the pedicels ca. 2 cm long, the calyx 1-1.4 cm long, with the lobes partially connate, acute or acuminate, the corolla tubular, somewhat inflated, 3-5 cm long, with a prominent spur and a prominent galea, ca. 1 × 1 cm; the nectary consisting of five glands, with the two dorsal ones enlarged and connate. *Sinningia incarnata* can be distinguished from its congeners by its tall habit, elliptic leaves, terminal inflorescence, the flowers borne upright, and especially by its long, tubular corolla with a prominent galea. Figure 1 is a reproduction of the original type plate of *Besleria incarnata* from the year 1775, Figure 2 depicts the typical habit of this species, as seen in an herbarium specimen, and Figure 3 shows a flower of *Sinningia incarnata.*

10. **Sinningia incarnata** (Aubl.) Denham, Baileya 19(3):126. 1974.
Besleria incarnata Aubl., Hist. Pl. Guiane Franç. 2:635, 4:t. 256. 1775.
Fimbrolina incarnata (Aubl.) Raf., Sylva Telluriana 71. 1838.
Rechsteineria incarnata (Aubl.) Leeuwenb., Acta Bot. Neerl. 7:320. 1958.

TYPE: *Aublet s.n., 1775* (HOLOTYPE: BM). TYPE LOCALITY: French Guiana: Mont Fusce.
Gesneria aurantiaca Hanst., Ind. Sem. Hort. Berol., App. 1861:8. 1861; Linnaea 34:268. 1865.
TYPE: *Gollmer s.n.* (HOLOTYPE: B, destroyed in 1943). TYPE LOCALITY: Venezuela: Caracas.
Rechsteineria aurantiaca (Hanst.) Kuntze, Rev. Gen. Pl. 2:474. 1891.
Gesneria caracasana Otto & Dietr., Allg. Gartenz. 6(44):345-346. 1838. Linnaea 34:269. 1865.
TYPE: not deposited by authors; material similar to the original description was deposited later at B (*fide* Hanstein), but destroyed in 1943. TYPE LOCALITY: Venezuela: Caracas.

Rechsteineria caracasana (Otto & Dietr.) Kuntze, *loc. cit.*

Corytholoma caracasanum (Otto & Dietr.) Decaisne, Rev. Hortic. 20: 466-467. 1848.

Gesneria chelonioides HBK, Nov. Gen. Sp. Pl. 2:392. 1818.

TYPE: *Humboldt & Bonpland s.n.* (HOLOTYPE: P). TYPE LOCALITY: Colombia: Cauca: ca. 30 km SSW of Popayan.

Rechsteineria chelonioides (HBK) Kuntze, *loc. cit.*

Rechsteineria crenata Fritsch, Notizbl. königl. Bot. Gart. & Mus., Berlin-Dahlem 6(60):381. 1915.

TYPE: *Ule 8320* (HOLOTYPE: B, destroyed in 1943; LECTOTYPE: K). TYPE LOCALITY: Brazil: Rio Branco.

Gesnera eggersii Donn. Smith, Bot. Gaz. (Crawfordsville) 61:384. 1916.

TYPE: *Eggers 13124* (HOLOTYPE: US). TYPE LOCALITY: Venezuela: Isla de Margarita: El Valle.

Gesneria elatior HBH, Nov. Gen. Sp. Pl. 2:393. 1818.

TYPE: *Humboldt & Bonpland 191* (HOLOTYPE: P). TYPE LOCALITY: Colombia: Cerro Tumiriquiri, probably in Cauca or Huila. The Herbarium Willdenow at B has a collection, *Humboldt & Bonpland 2032*, labelled both "*Gesneria chelonioides* HBK" and "*Gesneria elatior* HBK," and indication of the close similarity of these collections, even though they come from different geographical regions and ecological habitats. The same collection has an annotation in a different hand-writing: "Multis convenit *G. rutila* Lindley."

Rechsteineria elatior (HBK) Kuntze, *loc. cit.*

Gesneria elliptica Hooker var. *lutea* Hooker, Bot. Mag. 72: t.4242. 1846.

TYPE: *Hooker, Bot. Mag., Icon. cit.*, no specimen preserved at K. TYPE LOCALITY: Colombia: Sierra de Santa Marta. The variety *elliptica* of this species, with red flowers, was not formally described by Hooker, but listed in the text as var. *alpha* The flowers of *Gesneria elliptica* approach in size and shape those of *G. warszewiczii* from northern Central America and Mexico.

Corytholoma ellipticum (Hooker) Decaisne, *loc. cit.*

Rechsteineria elliptica (Hooker) Kuntze, *loc. cit.*

Gesnera erubescens Hanst., Ind. Sem. Hort. Berol., App. 1861:8. 1861; Linnaea 34:269. 1865.

TYPE: *Cult. Hort. Berol.*, from live material sent by Gollmer, (HOLOTYPE: B, destroyed in 1943). TYPE LOCALITY: Venezuela: Caracas.

Rechsteineria erubescens (Hanst.) Kuntze, *loc. cit.*

Gesnera flavescens Hanst., Ind. Sem. Hort. Berol., App. 1861:8. 1861; Linnaea 34:267. 1865.

TYPE AND TYPE LOCALITY: unknown.

Rechsteineria flavescens (Hanst.) Kuntze, *loc. cit.*

Rechsteineria faucidens Hoehne, Sellowia 974. 1958.

Figure 1: The type *illustration* of *Besleria incarnata* Aubl., reproduced from a lithograph in Aublet, Histoire des plantes de la Guiane Françaisee 4: plate 256. 1775. The artist took some liberty with the limb of the corolla, the anthers, the stigma, and the nectary, features not always easily discernable from herbarium specimens. Jean Baptiste Christophe Fusée Aublet (1720-1778) was a French explorer and botanist who visited French Guiana for two years, from 1762 to 1764, made many drawings and collected many specimens of tropical plants which formed the basis for his four-volumed work.

Figure 2: Typical habit of *Sinningia incarnata*, as seen in a herbarium specimen from plants cultivated at SEL, grown from seeds collected in coastal Venezuela by Dr. George Bunting [*Wiehler 76248* (SEL)].

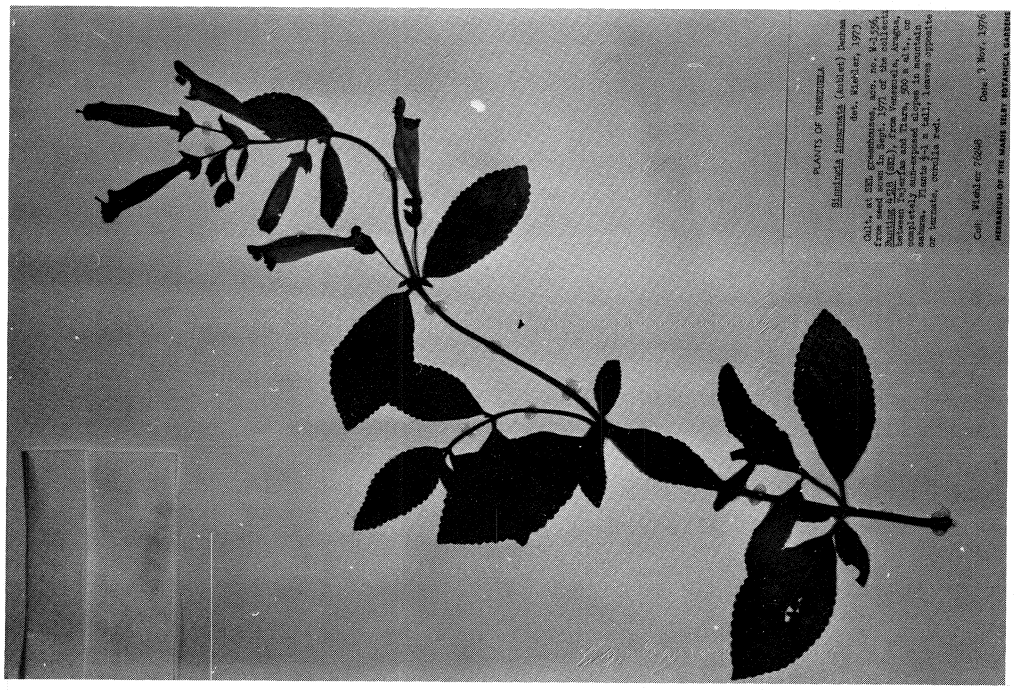


Figure 2

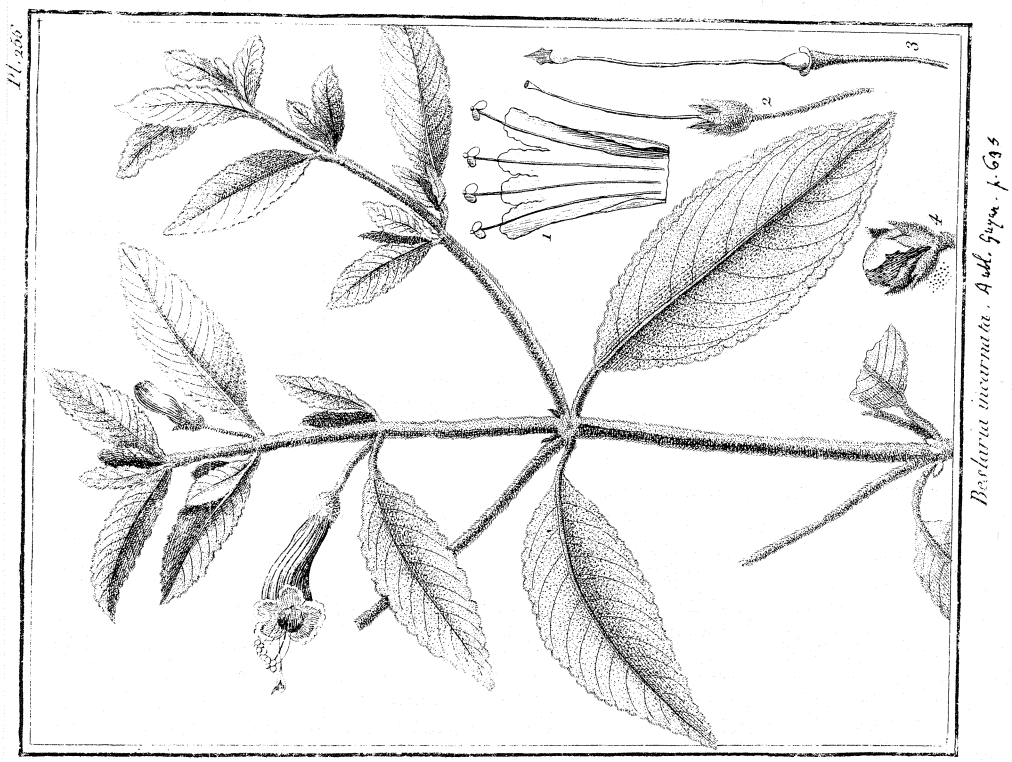


Figure 1

TYPE: *Black & Magalhaes 51* (HOLOTYPE: IAN). TYPE LOCALITY: Brazil: Río Branco.

Rechsteineria faucidens Hoehne, var. *parvifolia* Hoehne, *loc. cit.*

TYPE: *Froes 25820* (HOLOTYPE: IAN). TYPE LOCALITY: Brazil: Amapá.

Gesnera gollmeriana Hanst., Ind. Sem. Hort. Berol., App. 1861:7. 1861; Linnaea 34:266. 1965.

TYPE: *Cult. Hort. Berol.*, from live material sent by Gollmer, (HOLOTYPE: B, lost in 1943). TYPE LOCALITY: Venezuela: Caracas.

Rechsteineria gollmeriana (Hanst.) Kuntze, *loc. cit.*

Corytholoma gracile Brongn. ex Regel, Gartenflora 4:246, t.131 ("127"). 1855.

TYPE: *Regel, Gartenflora, Icon. cit.*, no specimen preserved. TYPE LOCALITY: unknown.

Gesnera gracilis (Brongn. ex Regel) Hanst., Linnaea 34:272. 1865.

Rechsteineria gracilis (Brongn. ex Regel) Kuntze, *loc. cit.*

Gesneria guianensis Benth., London J. Bot. 5:360. 1846.

TYPE: *Schomburgk 118* (HOLOTYPE: K; ISOTYPE at BM = LECTOTYPE: of *Gesneria schomburgkiana* Kunth & Bouché). TYPE LOCALITY: Guyana.

Gesnera lehmannii Don. Smith, Bot. Gaz. (Crawfordsville) 61:384. 1916.

TYPE: *F. C. Lehmann 7903* (HOLOTYPE: US). TYPE LOCALITY: Colombia: Cauca. Fritsch saw an isotype of this collection at B (now destroyed) and recognized it as *Rechsteineria elliptica* (Hooker) Kuntze in Bot. Jahrb. Syst. 50:438. 1913.

Gesneria lindeniana Brongn., Rev. Hortic. Sér. III, 1:363. 1847.

TYPE: *Linden 1408* (HOLOTYPE: G; ISOTYPES: BM, F, G, GENT, K, P, W - 2 sheets). TYPE LOCALITY: Venezuela: Merida.

Corytholoma paludosum Rusby, Mem. New York Bot. Gard. 7:360. 1927.

TYPE: *O. E. White 1111* (LECTOTYPE: NY). TYPE LOCALITY: Bolivia.

Gesneria rutila Lindl., Bot. Reg. 14:t. 1158. 1828.

TYPE: Cult. *Hort. Comte de Vandes* at Bayswater, Sept. 1827 (HOLOTYPE: CGE). TYPE LOCALITY: live material obtained from "South America." The galea of the corolla of the holotype is longer that that of the type illustration. The type sheet at CGE contains a second collection, obviously thought to be of the same species: *Spruce 3024*, from Brazil: Amazonas: Rio Negro, near San Carlos. *Gesneria rutila* var. *atrosanguinea* Lindl. Bot. Reg. 15:t. 1279, 1829, from Rio de Janeiro, belongs to the species complex of *Sinningia sceptrum* (see below); Kuntze named this variety a separate species: *Rechsteineria atrosanguinea* (see below).

Corytholoma rutilum (Lindl.) Decaisne, *loc. cit.*

Rechsteineria rutila (Lindl.) Kuntze, *loc. cit.*

Gesnera sceptroides Hanst., Ind. Sem. Hort. Berol., App. 1861:7. 1861; Linnaea 34:261. 1865.

TYPE: *Cult. Hort. Berol.*, from live material sent by Moritz (HOLOTYPE: B, destroyed in 1943). TYPE LOCALITY: Venezuela ("Colombia").

Rechsteineria sceptroides (Hanst.) Kuntze, *loc. cit.*

Gesneria schomburgkiana Kunth & Bouché, Ind. Sem. Hort. Berol. 1844:11. 1844; Linnaea 34:270. 1865 (as "*Gesnera schomburgkii*").

TYPE: *Schomburgk 118* (HOLOTYPE: B, destroyed in 1943; LECTOTYPE: BM; ISOTYPE: K, = HOLOTYPE: of *Gesneria guianensis* Benth.). TYPE LOCALITY: Guyana. The minor differences between collections labelled *G.* or *R. schomburgkiana* and *R.* or *S. incarnata* are due to geographical or ecological variation and fall well within the range of *S. incarnata.*

Rechsteineria schomburgkiana (Kunth & Bouché) Kuntze, *loc. cit.* (as *R.* "schomburgkii').

Gesneria stachydifolia Benth., Pl. Hartweg. 230. 1846.

TYPE: *Hartweg s.n.* (not no. *1259*, as stated by Hanstein and Leeuwenburg; that no. is the type of *G. vestita* Benth.) (HOLOTYPE: K); TYPE LOCALITY: Colombia: Cauca.

Rechsteineria stachydifolia (Benth.) Kuntze, *loc. cit.*

Gesneria stricta Hooker & Arn., J. Bot. (Hooker) 1:280. 1834; Bot. Mag. 66:t. 3738. 1840.

TYPE: *Tweedie s.n.* (HOLOTYPE: K). TYPE LOCALITY: Brazil: Rio Grande do Sul. Tweedie sent a single dried specimen and live tubers. The Bot. Mag. illustration was prepared later from this live material; the type sheet includes the cultivated material. This cultivar from southern Brazil is practically indistinguishable from collections of *R. elliptica* from Colombia or *S. warszewiczii* from Central America.

Corytholoma strictum (Hooker & Arn.) Decaisne, *loc. cit.*

Rechsteineria stricta (Hooker & Arn.) Kuntze, *loc. cit.*

Sinningia stricta (Hooker & Arn.) Wiehler, Selbyana 1(1):33. 1975.

Gesneria vargasii DC. Prodr. 7:527. 1839.

TYPE: *Vargas s.n.* (HOLOTYPE: G, not seen). TYPE LOCALITY: Venezuela: Caracas.

Rechsteineria vargasii (DC.) Kuntze, *loc. cit.*

Gesnera warszewiczii Bouché & Hanst., Ind. Sem Hort. Berol. App. 1861:9. 1861; Linnaea 34:273. 1865.

TYPE: *Warszewicz s.n.* (HOLOTYPE: B, destroyed in 1943). TYPE LOCALITY: Guatemala.

Rechsteineria warszewiczii (Bouché & Hanst.) Kuntze, *loc. cit.*

Sinningia warszewiczii (Bouché & Hanst.) H. E. Moore, Baileya 19(1): 40. 1973.

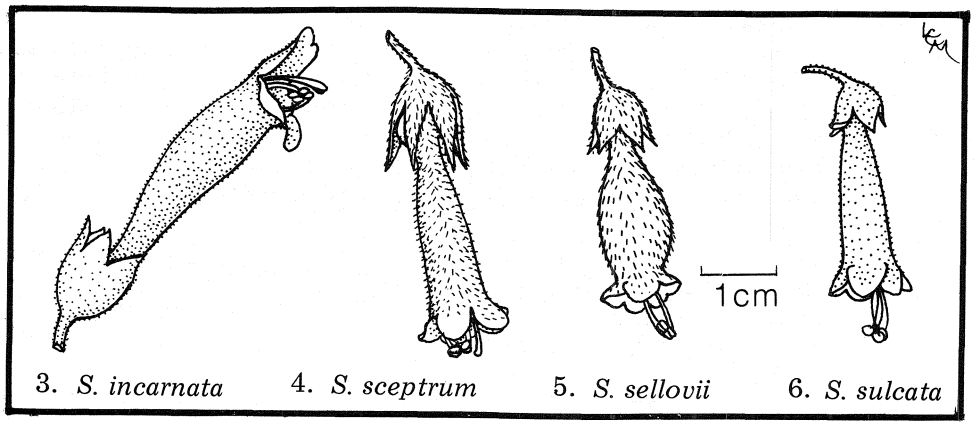
In the transfer of cultivated species of *Rechsteineria* to *Sinningia* (Moore, 1973b), *R. lindleyi* (Hooker) Fritsch was given a new name, *S. claybergiana* H. E. Moore, because the epithet *lindleyi* was already occupied in *Sinningia.* A study of the description and of the type material connected with *Gesneria lindleyi* Hooker reveals, however, that a name exists in the literature which has priority over *S. claybergiana,* and, more importantly, that *G. lindleyi* is a heterotypic synonym for *Gesnera sceptrum* Martius, as already indicated on the "type" sheet of *G. lindleyi* at Kew. Hooker actually renamed this species *G. lindleyi* in 1837 because the same plant material, introduced to cultivation in England from Rio de Janeiro, had already been described by Lindley as *Gesneria rutila* Lindley var. *atrosanguinea* in 1829. Hooker rightly maintained that the typical variety of *G. rutila* (Bot. Reg. 14:t. 1158 = *Sinningia incarnata*) was not conspecific with the variety *atrosanguinea.* Otto Kuntze apparently did not agree with Hooker's method of renaming Lindley's variety, because he transferred it to *Rechsteineria* in 1891 as *R. atrosanguinea* Kuntze. If Martius' *Gesnera sceptrum* (1829) were

not to be considered, the correct specific epithet for *G. lindleyi* in *Sinningia* would have to be *atrosanguinea*. The new name *S. claybergiana* is therefore superfluous, even though Dr. Carl Clayberg deserves to be honored for his recent cytogenetic work which led to the union of *Rechsteineria* and *Sinningia* (Moore, 1973b).

As mentioned above, the name *Gesnera sceptrum* Mart. appears in an early handwriting on the "type" sheet of *G. lindleyi*. A study of herbarium collections from southeastern Brazil, including the State of Rio de Janeiro, the type locality of *G. lindleyi*, shows that the same species has been annotated sometimes as *G.* or *R. lindleyi*, but more frequently as *G.* or *R. sceptrum*. Kew has four large folders containing *R. sceptrum*. The two names definitively refer to the same species, and the epithet *sceptrum* has priority as the older name.

Sinningia sceptrum has a fairly wide distribution in the southern neotropics. It is native to the States of Misiones, Corrientes, Chaco, Formosa, Tucuman, Catamarca, Salta, and Jujuy in Argentina, to Paraguay, Bolivia, Peru, and to southeastern Brazil from Rio Grande do Sul to Minas Gerais. The synonomy of *S. sceptrum* is not as extensive as that of *S. incarnata*. The numerous collections of *S. sceptrum* show regional or ecological variation in leaf size, shape, texture, indument, and in the shape of the small calyx. The habit and leaves of the two species are similar, and the corolla has about the same length. The two species can be easily distinguished by the following key:

1. Flowers always upright or ascending, corolla bilabiate, with a prominent galea (Figure 3) . . . . . *S. incarnata*
1. Flowers upright, horizontal, or nodding, corolla lobes subequal, without a galea (Figure 4) . . . . . *S. sceptrum*



Figures 3-6 : Flowers of species of *Sinningia* in cultivation. 3. *S. incarnata* (Aubl.) Denham, from Aragua, Venezuela, W-1556; 4. *S. sceptrum* (Mart.) Wiehler, from Sao Paulo, Brazil, G-197 (recently known in cultivation as *S. claybergiana* H. E. Moore); 5. *S. sellovii* (Mart.) Wiehler, W-1197, cult. Bot. Gard. Utrecht; 6. *S. sulcata* (Rusby) Wiehler, W-1227, from Bolivia.

11. **Sinningia sceptrum** (Mart.) Wiehler, Selbyana 1(1):32. 1975.
Gesnera sceptrum Mart., Nov. Gen. Sp. Pl. 3:32, tab. 214. 1829.

TYPE: *Martius s.n.* (LECTOTYPE: M). TYPE LOCALITY: Brazil: Sao Paulo: Mogi das Cruces.

Corytholoma sceptrum (Mart.) Decaisne, Rev. Hortic. 20:466-467. 1848.

Rechsteineria sceptrum (Mart.) Kuntze, Rev. Gen. Pl. 2:474. 1891.

Gesneria rutila Lindl. var. *atrosanguinea* Lindl., Bot. Reg. 15:t. 1279. 1829.

TYPE: *Lindley, Bot. Reg., Icon. cit.*, no specimen preserved at CGE or K. TYPE LOCALITY: Brazil: vicinity of Rio de Janeiro, live material imported to England by a Mr. J. Macculloch, *fide* Lindley.

Gesneria lindleyi Hooker, Bot. Mag. 64:t. 3602. 1837.

TYPE: Since Hooker cites the above *G. rutila* var. *atrosanguinea* Lindl. as a synonym of *G. lindleyi*, and since both names are based on the same collection in cultivation, the type of *G. lindleyi* has to be identical with Lindley's variety *atrosanguinea*, namely plate 1279 in Bot. Reg. Hooker merely raised this variety to specific rank. The "type" sheet of *G. lindleyi* at K, containing a specimen of the cultivar, represents a clonotype of var. *atrosanguinea*.

Corytholoma lindleyi (Hooker) Decaisne, *loc. cit.*

Rechsteineria lindleyi (Hooker) Fritsch, Bot. Jahrb. Syst. 50:436. 1913.

Rechsteineria atrosanguinea Kuntze, Rev. Gen. Pl. 2:474. 1891.

Based on *Gesneria rutila* var. *atrosanguinea* Lindl.

Sinningia claybergiana H. E. Moore, Baileya 19(1):39. 1973.

Based on *Gesneria lindleyi* Hooker (not *Sinningia lindleyi* Schauer, Flora 17:642. 1834), and thus on *Gesneria rutila* var. *atrosanguinea* Lindl., with *Bot. Reg. t.1279* as the type.

Corytholoma igneum (Mart.) Decaisne, Rev. Hortic, 20:467. 1848.

Based on the name *Gesnera sceptrum* Mart. var. *ignea* Mart. (= one of three varieties cited by Martius in his original description of *G. sceptrum*), and on the illustration in Bot. Mag. 64:t. 3576. 1837, labelled *Gesneria sceptrum* var. *ignea*.

Corytholoma igneum (Mart.) Fritsch, Bihang till K. svenska Vet.-Akad.-Handlingar 24,3(5):23 1898. An illegitimate, later homonym of above. Fritsch contended that the illustration in Bot. Mag. t. 3576 represented the typical var. of *G. sceptrum*.

Rechsteineria ignea (Mart.) Fritsch, Bot. Jahrb. Syst. 50:436. 1913.

Gesnera fragilis Poeppig, *in* Poeppig & Endlicher, Gen. Nov. Sp. Pl. 3:7. 1845.

TYPE: *Poeppig 1771* (HOLOTYPE: W; ISOTYPE: P). TYPE LOCALITY: Peru: Huanuco: Cuchero.

Rechsteineria multiflora Fritsch, Bot. Jahrb. Syst. 50:437. 1913.

TYPE: *Fiebrig 823* (HOLOTYPE: B, lost in 1943; LECTO-ISOTYPE: K; ISOTYPE: HBG). TYPE LOCALITY: Paraguay.

Rechsteineria peruviana Fritsch, Beibl. Bot. Jahrb. Syst. 54:37. 1916.

TYPE: *Weberbauer 6464* (HOLOTYPE: B, lost in 1943). TYPE LOCALITY: Peru: Huancavelica.

Rechsteineria stenantha Frisch, Bot. Jahrb. Syst. 50:437. 1913.

TYPE: *Fiebrig 2109* (HOLOTYPE: B, lost in 1943). TYPE LOCALITY: Bolivia. Collections at W determined by Fritsch as *R. stenantha*, for instance *Parodi 8293* from the Dept. of Chaco, Argentina, match *S. sceptrum*.

Gesnera warmingii Hiern, Vidensk Meddel. (Copenhagen) 1877-78:90. 1877-78.

TYPE: *Warming 577* (HOLOTYPE: C?; ISOTYPE: K). TYPE LOCALITY: Brazil: Minas Gerais: Lagoa Santa.

Rechsteineria warmingii (Hiern) Hjelmq., Bot. Notiser 1937: 297. 1937.
Rechsteineria weberbaueri Fritsch, Bot. Jahrb. Syst. 50:435. 1913.
TYPE: *Weberbauer 4800* (HOLOTYPE: B, lost in 1943). TYPE LOCALITY: Peru: Cajamarca.

The following two species of *Rechsteineria* are now in cultivation and need to be transferred to *Sinningia* because of the recent union of these genera:

12. **Sinningia sellovii** (Mart.) Wiehler, comb. nov.
Gesnera sellovii Mart., Nov. Gen. Sp. Pl. 3:36. 1829.

TYPE: *Sellow s.n.* (HOLOTYPE: M; ISOTYPE: K - 2 sheets). TYPE LOCALITY: Brazil: Rio Grande do Sul: Mont Butucaray.

Rechsteineria sellovii (Mart.) Kuntze, Rev. Gen. Pl. 2:474. 1891.
Corytholoma sellovii (Mart.) Kuntze, Rev. Gen. Pl. 3:241. 1898.
Rechsteineria ramboi Hoehne, Sellowia 9:67. 1958.
TYPE: *Rambo s.n.* (HOLOTYPE: PACA). TYPE LOCALITY: Brazil: Parana: Salto do Iguaçu.

Sinningia sellovii is native to southeastern Brazil, Argentina (Misiones), Paraguay, and eastern Bolivia. The first collection in cultivation in the United States came from the Utrecht Botanical Garden (SEL greenhouse acc. no. W-1197), the second was recently collected by Ben Paternoster in Bolivia (vicinity of Santa Cruz; W-2508). Figure 5 shows the shape of the flower of *S. sellovii.*

13. **Sinningia sulcata** (Rusby) Wiehler, comb. nov.
Gesnera sulcata Rusby, Mem. Torrey Bot. Club. 4:237. 1895.

TYPE: *Bang 629* (HOLOTYPE: NY; ISOTYPE: K). TYPE LOCALITY: Bolivia: Yungas.

Rechsteineria sulcata (Rusby) Fritsch, Bot. Jahrb. Syst. 50:436. 1913.
Sinningia sulcata is known only from Bolivia. The material in cultivation in the United States was collected by Prof. Martin Cardinas in 1967 in the Dept. of La Paz, Province Sud-Yungas, near Puente Villa, 1680 m alt. The corolla is pure yellow (Figure 6).

In addition, the following new combinations are needed for correct determination of herbarium material. *Gesneria bulbosa* Ker-Gawl. is the oldest name for a very interesting but nomenclaturally entangled species complex from southeastern Brazil. The other species, *G. rupicola* Mart., is quite distinct from its congeners.

14. **Sinningia bulbosa** (Ker-Gawl.) Wiehler, comb. nov.
Gesneria bulbosa Ker-Gawl., Bot. Reg. 4:t. 343. 1818.
Dircaea bulbosa (Ker-Gawl.) Decaisne, Rev. Hortic. 20:466. 1848.
Rechsteineria bulbosa (Ker-Gawl.) Kuntze, Rev. Gen. Pl. 2:474. 1891.
Corytholoma bulbosum (Ker-Gawl.) Fritsch, Bot. Jahrb. 29, Beiblatt 65:22. 1900.

TYPE: *Ker-Gawler, Bot. Reg., Icon. cit.*, no specimen found at K, BM, or CGE. TYPE LOCALITY: Cult. in England, from material sent by a Mr. Chamberlain, the English consul at Rio de Janeiro.

DISTRIBUTION: Southeastern Brazil.

15. **Sinningia rupicola** (Mart.) Wiehler, comb. nov.
Gesnera rupicola Mart., Nov. Gen. Sp. Pl. 3:30. t. 213. 1829.
Corytholoma rupicolum (Mart.) Decaisne, Rev. Hortic. 20:467. 1848.
Rechsteineria rupicola (Mart.) Kuntze, Rev. Gen. Pl. 2:474. 1891.

TYPE: *Martius s.n.* (HOLOTYPE: M). TYPE LOCALITY: Brazil: Minas Gerais: near Ouro Preto.

DISTRIBUTION: Brazil: Sao Paulo, Minas Gerais, and Goias.

The following 16 species, new to science, are described and illustrated mainly from material in cultivation at the gesneriad greenhouse at SEL.

16. **Besleria chiriquensis** Wiehler, sp. nov. (Plate 1:A)

Ex affinitate *B. solanoidis* HBK, sed caulibus foliisque pilosis, foliorum laminiis majoribus, venis lateralibus 9-11, et corollarum faucibus intus glanduloso-pilosis differt.

Terrestrial, perennial shrub; stems erect, to 3 m tall, light green, pilose, the internodes ca. 4 cm long; leaf pairs subequal to unequal, the petiole 3-9 cm long, light green, pilose, the lamina elliptic, 18-25 × 8-12 cm, acuminate, subentire to inconspicuously denticulate, obtuse at the base, chartaceous when dry, medium green above, light green below, pilose on both surfaces, the lateral pairs of veins 9-11. Inflorescences axillary cymes, with 2-8 flowers, the peduncle and bracts absent, the pedicels 8-15 mm long, light green, pilose; calyx lobes subequal, ovate to orbicular, 5 × 5 mm, subentire to erose, ciliolate, green, pilose-sericeous at base, glabrescent above; corolla oblique in the calyx, tubular, ca. 1.8 cm long, without a spur, orange-red, puberulous outside, the lobes equal, 1 × 2 mm, entire, the entrance inside covered with a ring of short, capitate, glandular hairs; stamens 4, included, the filaments adnate for 2 mm to the base of the corolla tube, ca. 1.5 cm long, orange, glabrous, the anthers coherent into a square, each anther 1.2 × 2.0 mm, the thecae dehiscing irregularly, confluent; ovary 4 mm long, white, glabrous, the style ca. 8 mm long, white, glabrous, the stigma stomatomorphic-bilobed; nectary ring-shaped, dorsally thickened, with 5 lobes, glabrous. Fruit an ovoid, shiny, orange, glabrous berry; seeds minute, subglobose but polygonal and multifacial, 0.2 mm in diam., striate, orange-brown.

TYPE: *PANAMA:* CHIRIQUI: vicinity of Barriles, 6-16 km S of Volcán, 1000-1300 m alt., 25 April 1971, *R. L. Dressler & N. H. Williams 3988* (HOLOTYPE: SEL; ISOTYPE: MO). isotype at MO not located

DISTRIBUTION: Known only from the type locality.

ADDITIONAL MATERIAL EXAMINED: *PANAMA:* CHIRIQUI: type locality, seed of type material sown and cultivated at SEL, greenhouse acc. no. W-1770, specimens prepared 13 May 1975, *Wiehler 75268* (MO, SEL, US).

17. **Besleria maasii** Wiehler, sp. nov. (Plate 1:B)

Inter species generis guianenses fortasse *B. verecundae* Morton affinis, a quo calycum lobis mucronatis, et nectariis semi-annularibus bene distincta.

Terrestrial, perennial herb; stems erect, to 70 cm tall, tan, sericeous, the internodes 2-10 cm long; leaf pairs subequal to unequal, the petiole ca. 1 cm long, light green, flushed with rose, sericeous, the lamina ovate to elliptic, 9-9-12 × 5-6 cm, acuminate, serrate, obtuse to decurrent, chartaceous when

dry, yellow-green and pilose above, pale green and sericeous below, the lateral pairs of veins 5-7. Inflorescences axillary cymes of 4-8 flowers, the peduncles and pedicels both 1-1.7 cm long, yellow-green, sericeous; calyx 1-1.5 cm long, the lobes subequal, lanceolate, connate for about ½ of their length, acuminate, conspicuously mucronate, entire, weakly sericeous; corolla almost erect in the calyx, tubular, ca. 2 cm long, ventricose, bright orange, glabrous, the lobes subequal, ca. 3 × 3 mm, rounded, entire, the distal half of the tube inside with capitate, glandular trichomes; stamens 4, included, the filaments adnate for 4 mm to the base of the corolla tube, ca. 1.4 cm long, white, glabrous, the anthers coherent into a square, each anther 1.2 × 2 mm, the thecae dehiscing irregularly, confluent; ovary 4 mm long, white, glabrous, the style ca. 8 mm long, white, glabrous, the stigma captitate-stomatomorphic; nectary dorsal, semi-annular, white, glabrous. Fruit a pointed berry; seeds small, 0.2 mm in diam., striate, orange-brown.

TYPE: *FRENCH GUIANA:* Saül, ca. 3° 50' N, 53° 0' W, cultivated at SEL, greenhouse acc. no. W-2186, from seed of the collection *Paul Maas 2281 (U)*, sown 20 April 1975, first flowers Aug. 1976, herbarium specimens prepared 20 Aug. 1978, *H. Wiehler 78132* (HOLOTYPE: SEL; ISOTYPES: BH, CAY, K, NY, U, US).

DISTRIBUTION: Known only from the type locality.

The majority of the species of *Besleria* have no horticultural merit. *Besleria maasii* is fairly compact, and produces bright orange flowers throughout the year (in Florida); it will be released to the gesneriad societies as a good representative of its genus.

18. **Cremosperma occidentale** Wiehler, sp. nov. (Plate 1:C)

A *C. maculato* L. Skog corolla curvata non-maculata distinguendum.

Terrestrial or epiphytic herbaceous plant, often on mossy tree trunks; stems woody, the lower part (covered by moss or soil) creeping, with adventitious roots, the upper part erect, 10-15 cm long, ca. 3 mm in diam., tan, sericeous, villous near the apex, the internodes 1-4 cm long; leaf pairs subequal, the petiole 2-10 mm long, light green, sericeous, the lamina ovate to elliptic, ca. 2.5 × 1.2 cm, leathery, plain bluish green and pilose above, light green and sericeous along the veins below, the apex and base acute, the margins serrate, the lateral pairs of veins 5-6. Inflorescences axillary cymes near the shoot apex, pseudo-umbellate, with 4-10 flowers, the peduncle 1.5-2.5 cm long, green, sericeous, the bracts absent, the pedicels 2-3 mm long, green, villous; calyx ca. 7 mm long, the lobes subequal, ca. 3 × 2 mm, acuminate, entire, outside pilose-sericeous, inside glabrous; corolla erect in the calyx, ca. 2 cm long, white, the infundibular tube bent downward, pilose, the limb bilabiate, the lobes strongly unequal, rounded, subentire, outside pilose, inside glabrous, the 2 dorsal lobes ca. 5 × 5 mm, the 2 lateral lobes ca. 6 × 5 mm, the ventral lobe ca 7-8 × 5 mm, the throat inside glandular pubescent, the tube inside glabrous; stamens 4, included, the filaments adnate for 6 mm to the base of the corolla tube, altogether ca. 1.3 cm long, white, glabrous, the anthers coherent into a square, each anther 0.7 × 1 mm, the thecae dehiscing irregularly, confluent; ovary ovoid, 2 mm long, white, glabrous, the style 1.3 mm long, white, glabrous, the stigma stomatomorphic; nectary ring-shaped, white, glabrous. Fruit capsular, laterally compressed, bivalved, with membranaceous, transparent, berry-like carpel walls; seeds minute, oblong, 0.5 × 0.2 mm, striate, light brown.

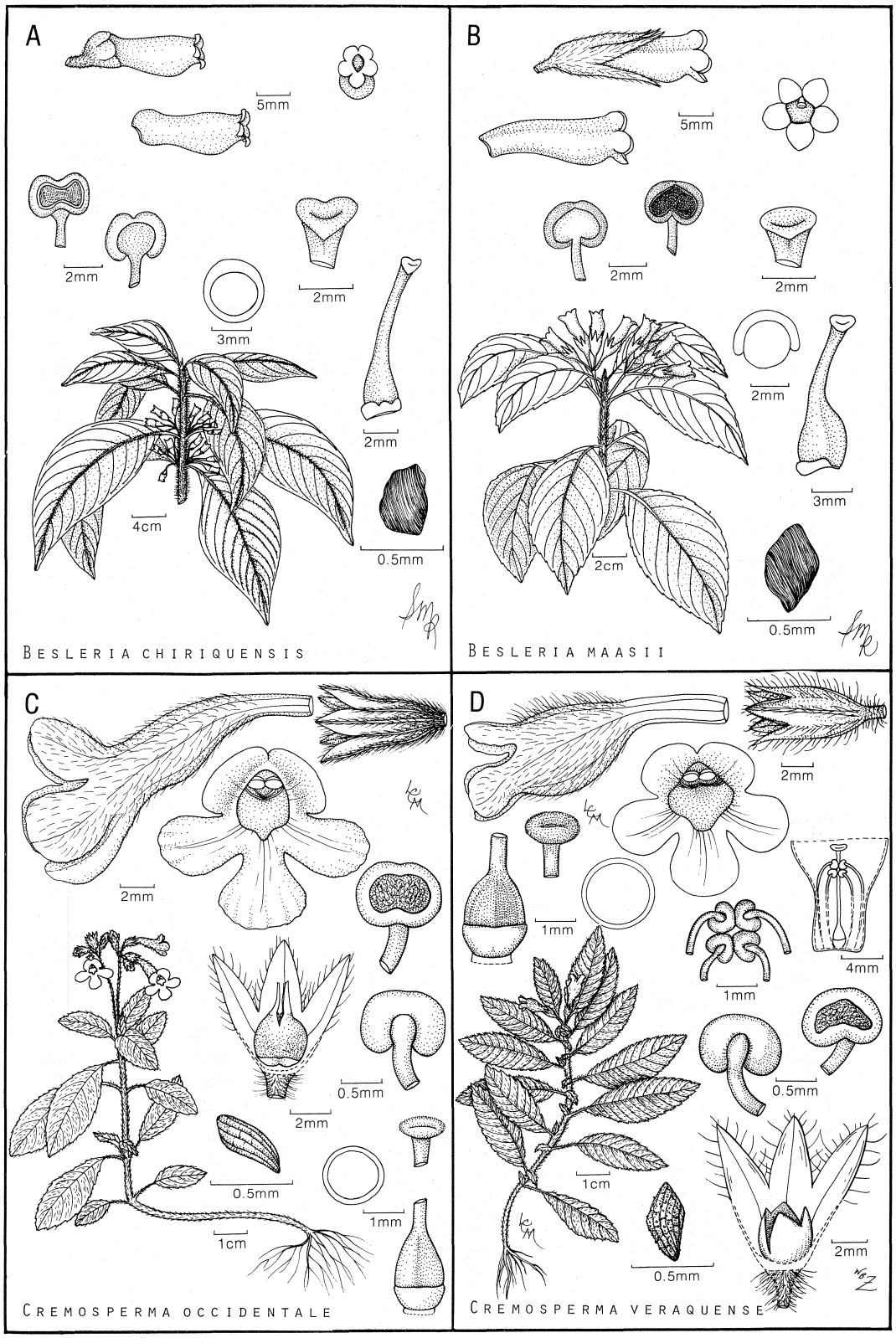

A
5mm
2mm
2mm
3mm
2mm
4cm
0.5mm
BESLERIA CHIRIQUENSIS
B
5mm
2mm
2mm
2mm
3mm
2cm
0.5mm
BESLERIA MAASII
C
2mm
0.5mm
2mm
0.5mm
1mm
1cm
CREMOSPERMA OCCIDENTALE
D
2mm
1mm
1mm
4mm
0.5mm
1cm
0.5mm
2mm
CREMOSPERMA VERAQUENSE

Plate 1

TYPE: *PANAMA:* CHIRIQUI: Trocha 3 de Noviembre, between Alto de Guayabo and Paso de la Zorra, 1500-1600 m alt., on mossy tree trunks and roots, 25 Sept. 1976, *R. L. Dressler 5475* (HOLOTYPE: SEL).

DISTRIBUTION: Known only from the type locality in western Panama.

The genus *Cremosperma* Bentham, with nearly 20 described and several unpublished species, was until recently reported only from Ecuador and Colombia. The transfer of *C. minutiflorum* (L. Skog) Wiehler on page 45 of this volumn extends the range of this genus of low-growing, herbaceous plants to northern Peru. Three species are now known from Panama. *Cremosperma occidentale* represents the westernmost extension of the range of the genus.

19. **Cremosperma veraguanum** Wiehler, sp. nov. (Plate 1:D)

Inter species generis panamenses foliis per paria valde inaequalibus, pedunculo destituto, et corolla inflata ventricosa alba intus flava differt.

Terrestrial, saxicolous, or epiphytic herbaceous plant; stems woody, the lower part with adventitious roots, creeping in moss or soil, the erect part 4-12 cm long, ca. 1.5-2.2 mm in diam., tan, sericeous, villous near the apex, the internodes 1/4-1 cm long; leaf pairs strongly anisophyllous, the petiole 2-8 mm long, green, sericeous, the lamina of the larger leaf of a pair elliptic, 1.5-4.0 × 0.8-2.8 cm, chartaceous when dry, dark green and pilose above, paler green or reddish and sericeous along the veins beneath, the apex and base acute, the margins serrate, the lateral pairs of veins 3-6, the smaller leaf of a pair similar, 4-9 × 2-5 mm. Inflorescences reduced to solitary, short-stalked, ebracteate flowers in the axils of the larger leaves near the shoot apex, the pedicels 2-8 mm long, green, sericeous; calyx tube ca. 8 mm long, green or reddish, sericeous, inside glabrous, the lobes connate for 2/3 of their lengths, subequal, the free parts ca. 3 × 1.5 mm, acuminate, entire; corolla nearly erect in the calyx, ca. 1.6 cm long, white, sometimes flushed with rose, infundibular, abruptly expanding at mid-point, ventricose, sericeous-pilose, the limb bilabiate, the lobes strongly unequal, rounded, subentire, outside pilose, inside glabrous, the 2 dorsal lobes ca. 3 × 3 mm, the 2 lateral lobes and the ventral lobe ca. 4 × 4 mm, the tube inside yellow, the throat with a ring of short, glandular hairs; stamens 4, included, the filaments adnate for 7 mm to the base of the corolla tube, altogether ca. 11 mm long, white, glabrous, the anthers coherent into a square, each anther 0.8 × 1.2 mm, the thecae dehiscing irregularly, confluent; ovary ovoid, 2 mm long, white, glabrous, the style ca. 6 mm long, white, glabrous, the stigma stomatomorphic; nectary ring-shaped, white, glabrous. Fruit capsular, globose, with complete loculicidal and incomplete septicidal dehiscence; seeds minute, oblong, 0.5 × 0.2 mm, striate, light brown.

TYPE: *PANAMA:* VERAGUAS: ca. 8 km NW of Santa Fé, 2.7 km from Escuela Agrícola Alto Piedra, first branch of Río Santa Maria, on mossy rocks by stream, corolla white, yellow within, 18 May 1975, *R. L. Dressler 5034* (HOLOTYPE: SEL).

DISTRIBUTION: Panama; known only from the Province of Veraguas.

ADDITIONAL MATERIAL EXAMINED: *PANAMA:* VERAGUAS: Vicinity of Santa Fé, forested slopes of Cerro Tute, ca. 1000 m alt., epiphytic herb, 24 March 1947, *P. H. Allen 4351* (MO); Cerro Tute, 8-10 km NW of Santa Fé, 850-1100 m alt., mostly on logs, roots, and lower tree trunks, calyx reddish, corolla white, flushed with rose, yellow within, 3 Aug. 1975,

Dressler 5052 (SEL, US), about 14-15 km NW of Santa Fé, ca. 800 m alt., on mossy logs, in dense, wet forest, 29-30 March 1975, *Dressler 5005* (SEL); Guabal, (Río Dos Bocas), ca. 16 km NW of Santa Fé, ca. 500 m alt., on mossy rocks and lower tree trunks near river, 30 March 1975, *Dressler 5015* (SEL, US).

This Panamanian species was the first one to be identified as belonging to *Cremosperma*, thus extending the range of the genus to Central America. Two further congeners from Panama will be described later.

20. **Columnea chiricana** Wiehler, sp. nov. (Plate 2:A)

Ex affinitate *C. microcalycis* Hanst., *C. gloriosae* Sprague, et *C. localis* Morton, sed a prima caulibus non rigidis vix lignosis, foliis valde sericeis, a secunda tertiaque caulibus et foliis sericeis, a omnibus foliis serratis, pedicellis longioribus et crassioribus, corollis roseis, et faucibus non luteis diversa.

Epiphytic, perennial herb or subshrub, with thin, pendent stems to 2 m long, 2 mm in diam., tan, sericeous, the internodes 1-2 cm long; leaf pairs subequal, the petiole 1-3 mm long, green sericeous, the lamina ovate, 2-2.8 × 1.2-1.6 cm, acuminate or acute, weakly serrate, rounded at the base, very succulent (3-4 mm thick), but chartaceous when dry, medium green above, sometimes flushed with rose, pale green below, strigose on both sides, the lateral pairs of veins 3-4. Inflorescences reduced to solitary, ebracteate, axillary flowers, the pedicels 3-4 cm long, apically thickened, reddish, sericeous; calyx lobes subequal, oblanceolate, 1.3-1.6 × 0.4-0.5 cm, acute, entire, green, flushed with rose, sericeous on both sides; corolla erect in the calyx, 6-8.5 cm long, spurred, the tube gradually expanding, bright pink or rose pink, outside pilose, inside glabrous, the galea ca. 2 × 2.4 cm, the lateral lobes triangular, ca. 1 cm long, the ventral lobe strap-shaped, 3.5 × 0.5 cm; stamens 4, exserted, the filaments adnate for 3 mm to the base of the corolla tube, ca. 6-8 cm long, white, glabrous, the anthers coherent into a rectangle, each anther 3 × 1.2 mm, the thecae parallel, dehiscing by longitudinal slits; ovary ovoid, 3 mm long, densely sericeous, the style 6-8 cm long, white, pilose, distally flushed with rose, the stigma bilobed; nectary reduced to a double-connate, dorsal gland, 2 × 2 mm, white, glabrous. Fruit a globose berry, ca. 1.5 cm in diam., white, flushed with pink, pilose; seeds oblong, 1.9 × 0.5 mm, tan, striate, with fleshy funicles 3 mm long.

TYPE: *PANAMA:* CHIRIQUI: Bajo Grande, above Cerro Punta, pendent epiphyte to 2 m long, flowers bright pink, 23 Dec. 1974, *R. L. Dressler 4906* (HOLOTYPE: SEL).

DISTRIBUTION: Known only from the region of Cerro Punta in western Panama.

ADDITIONAL MATERIAL EXAMINED: *PANAMA:* CHIRIQUI: Region of Cerro Punta: trail from Cerro Punta to headwaters of Río Caldera, 2250-2500 m alt., epiphytic herb, pendent, flowers rose pink, 14 Jan. 1939. *P. H. Allen 1428* (GH, MO, US); near Cerro Punta, ca. 2100 m alt., corolla dusty rose, Nov. 1971, *Henry Butcher s.n.* (SEL); slopes of Cerro Punta, ca. 2000 m alt., pendent epiphyte, flowers magenta, 11 Sept. 1972, *Al Gentry 5888* (MO); open, pastured slopes, about 3 km NE of Cerro Punta, ca. 2300 m alt., epiphytic herbaceous vine with pendent branches, 13 Jan. 1971, *R. L. Wilbur et al. 13084* (DUKE); edge of forested slopes above Cerro Punta, in Quebrada Bajo Grande, ca. 2300 m alt., *Wilbur et al.*

10917 (DUKE); 6 km E of Cerro Punta, trail from Bajo Grande to Boquete, 2100-2400 m alt., occasional epiphyte, 23 Dec. 1971, *Wilbur et al. 15116* (DUKE); ca. 5 km NW of town of Cerro Punta, wooded slopes ca. 1 km N of Las Nubes, 2000-2300 m alt., 24 Dec. 1971, *Wilbur et al. 15206* (DUKE); ca. 2 km N of Cerro Punta, trail along upper Río Chiriquí Viejo, ca. 2 km NE of Guadelupe, 25 Dec. 1971, *Wilbur et al. 15343* (DUKE); above Guadelupe, Dec. 1976, *Dressler et al. s.n.*, SEL greenhouse acc. no. W-2356, (SEL).

Several species of *Columnea* in Panama and adjacent Costa Rica are so similar in habit and the shapes of leaves and flowers when pressed and dried, that they have caused considerable confusion in their determination as herbarium specimens. Yet these species are quite distinct when seen alive. *Columnea chiricana* is one of these often misidentified species in herbaria. The others are *C. microcalyx* Hanst. (published in 1865, but the Costa Rican type collection, *Wendland 910*, is lost), *C. gloriosa* Sprague (published in 1911, with the Costa Rican holotype at K, and good representative material in other herbaria and in cultivation), and *C. localis* Morton (published in 1938, based on an odd, large-leaved Costa Rican collection, *Tonduz 12932*, which was first named *C. microcalyx* var. *macrophylla* by Donnell Smith in 1901). Morton rightly considered this variety as specifically distinct from *C. microcalyx*. The Tonduz collection was at first the only known representative of *C. localis*, but in later years Morton determined herbarium collections of *C. gloriosa* and material from the Cerro Punta region (= *C. chiricana*) as *C. localis*. The type collection of *C. localis* appears to be an aberrant form of *C. gloriosa*. A first-hand knowledge of live material of these species facilitates the determination of their collections in herbaria. Table 1 shows the differences among these species.

TABLE 1 : DIFFERENCES AMONG SOME SPECIES OF *COLUMNEA*

Character	*C. microcalyx*	*C. gloriosa*	*C. chiricana*	*C. localis**
Stems	woody, stiff, pendent	herbaceous or semi-woody, pendent	herbaceous or semi-woody, pendent	herbaceous or semi-woody, pendent
indument	sericeous	densely pilose or hirsute	sericeous	pilose-hirsute
Leaves	succulent, inflated	thin	succulent, inflated	thin
shape	lanceolate to ovate-lanceolate	ovate-oblong	elliptic	oblong-elliptic
length	1.5-2.5 cm	2-3.5 cm	1.8-2.5 cm	2-5 cm
indument	thin strigose or almost glabrous	hirsute	densely strigose	soft pilose (= thin hirsute)
margins	entire, flat	entire, revolute	serrate or entire, flat	entire, revolute
lateral veins	almost invisible because of succulency	impressed above, prominently raised below	almost invisible because of succulency	prominent in herbarium collection
Pedicels	thin, 1-1.5 cm long	thin, 2-2.5 cm long	fleshy, ca. 3 cm long	thin, ca. 1.4 cm long
Corolla color	scarlet-red, with a yellow throat	scarlet-red, with a yellow throat	rose-pink, throat the same color	scarlet-red, with a yellow throat
Nativity	Costa Rica (Panama?)	Guatemala to Colombia, Venezuela. In Panama: Chiriquí, Veraguas, Coclé, Darién.	Panama: Chiriquí: Cerro Punta region	Costa Rica: Cartago: Tucurrique

*A recent re-examination of the holotype of *C. localis* (US, courtesy of Dr. L. Skog) reveals this collection as conspecific with *C. gloriosa:*

Columnea gloriosa Sprague, Bot. Mag. 137:t. 8378. 1911.
C. localis Morton, Fieldiana, Bot. 18:1165. 1938.
C. microcalyx Hanst. var. *macrophylla* Donn. Smith, Bot. Gaz. 31:118. 1901.
C. lutea Donn. Smith, Bot. Gaz. 57:425. 1914.
C. tuerckheimii Sprague, Kew Bull. 1912:42. 1912.

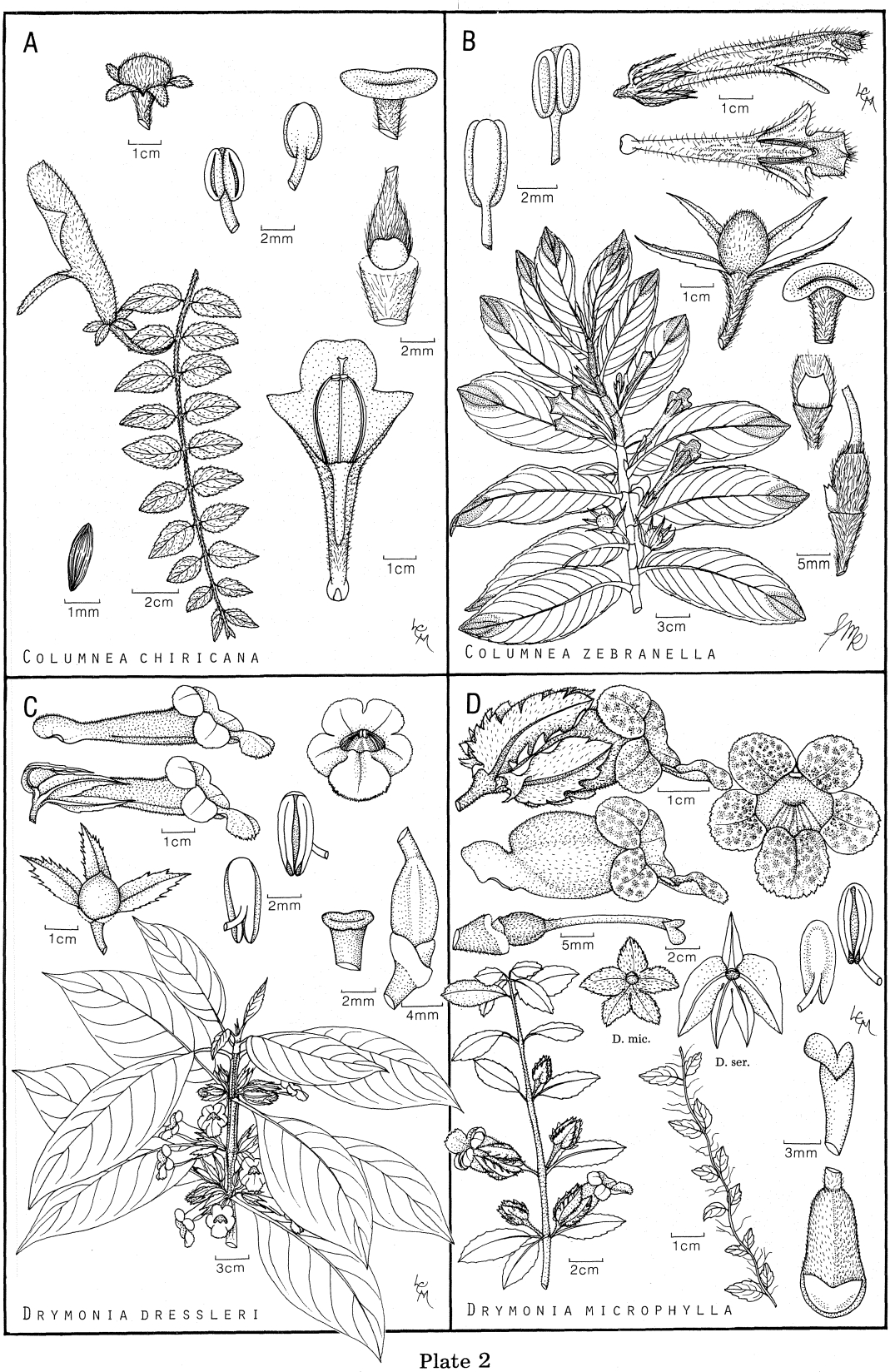

A
1cm
2mm
2mm
1cm
1mm
2cm
COLUMNEA CHIRICANA
B
1cm
2mm
1cm
5mm
3cm
COLUMNEA ZEBRANELLA
C
1cm
2mm
1cm
2mm
4mm
3cm
DRYMONIA DRESSLERI
D
1cm
5mm
2cm
D. mic.
D. ser.
3mm
1cm
2cm
DRYMONIA MICROPHYLLA

Plate 2

21. **Columnea zebranella** Wiehler, sp. nov. (Plate 2:B)

Differt a *C. zebrina* Raymond caulibus lanato-hirsutis, foliis ad apices non rubro-translucentibus, et calycibus dense appresso-pilosis; a *C. hirsutissima* Morton foliis supra glabris subtus sericeis, et calycibus maculatis; ab ambabus corollarum galeis dorsisque distaliter atrovinaceis.

Epiphytic, perennial herb or subshrub; stems spreading or ascending, to 1 m long, 8-10 mm in diam., tan, woolly-hirsute, the internodes 1-2 cm long; leaf pairs unequal, the petiole 2-5 mm long, light green, sericeous, the lamina of the larger leaf of a pair oblanceolate, ca. 12 × 4 cm, acuminate, serrulate, ciliate with red hairs, rounded at the base, leathery, medium green and glabrous above, flushed with rose, red-tipped (but not translucent), and sericeous below, the lateral pairs of veins 9-11, the smaller leaf of a pair similar, either ca. 3 × 1.5 cm or minute, stipule-like and withered. Inflorescences reduced to pedunculate, axillary cymes of 2-4 flowers, the bracts stipule-like, lanceolate, ca. 5 × 1 mm, green sericeous, the pedicels 1-1.3 cm long, light green, sericeous; calyx tube light green, appressed-pilose, the lobes subequal, lanceolate, ca. 2 × 0.5 cm long, acuminate, serrate, with 5-7 subulate teeth on each side, light green, flushed or speckled with wine-red, outside sericeous, inside glabrous; corolla erect in the calyx, ca. 7.5 cm long, spurred, the galea ca. 1.3 × 1.7 cm, the lateral lobes triangular, ca. 0.9 cm long, the ventral lobe strap-shaped, ca. 2.1 × 0.5 cm, the tube lemon-yellow, streaked or spotted with wine-red for the distal 2/3 of its length, the dorsal side and the galea completely deep wine-red, outside pilose, inside glabrous; stamens 4, exserted, the filaments adnate for 1/2 mm to the base of the corolla tube, ca. 6.3 cm long, white, glandular-pubescent, the anthers coherent into a rectangle, each anther 2 × 0.8 mm, the thecae parallel, dehiscing by longitudinal slits; ovary ovoid, 3 mm long, white, sericeous, the style ca. 6.3 cm long, white, proximally glabrous, distally hirsute, the stigma bilobed; nectary reduced to a double-connate, dorsal gland, 2 × 2 mm, gray, glabrous. Fruit a globose berry, ca. 1.8 cm in diam., white, pilose-hirsute; seeds oblong, 2 × 0.7 mm, striate, brown, with a fleshy funicle ca. 3 mm long.

TYPE: *PANAMA:* PANAMA: Cerro Jefe, epiphyte in cloud forest, 11 Aug. 1971, *Wiehler & Dressler 71186B* (SEL, sterile); live material of same collection cult. at SEL, greenhouse acc. no. W-1595, specimens prepared 25 Aug. 1978, Wiehler 78133 (HOLOTYPE: SEL; ISOTYPES: BH, F, K, MO, NY, PMA, U, US).

DISTRIBUTION: Endemic to Panama, known only from the type locality.

Columnea zebranella has some features of both *C. hirsutissima* Morton and *C. zebrina* Raymond which occur also on Cerro Jefe [*Wiehler & Dressler 71171B* and *71178* (SEL), respectively]. A possible hybrid origin for *C. zebranella* has to be considered, yet there are hardly any features intermediate between the two latter species. The pollen of this species in completely stainable in Aneline Blue and Lacto-Phenol, and the F_1 generation is uniform, without any exception.

22. **Drymonia dressleri** Wiehler, sp. nov. (Plate 2:C)

D. macrophyllae (Oerst.) H. E. Moore approximata, a quo foliis coriaceis glabris, corollis duplo majoribus recedit.

Perennial, epiphytic shrub; stems 1-2 m long, 1-1.5 cm in diam., tan, glabrous, the internodes 1-6 cm long; leaf pairs subequal, the petiole 1-4.5

cm long, green or flushed with red, glabrous, the lamina elliptic, 17-32 × 8-12 cm, leathery, acuminate, subentire to obscurely denticulate, oblique, glossy, medium or dark green above, pale green or flushed with rose below, glabrous on both sides, the lateral pairs of veins 5-7. Inflorescences reduced to axillary cymes of 4-6 flowers, the peduncle 1-3 mm long or absent, the bracts minute, lanceolate, 4-6 × 2-3 mm, green or flushed with purple, puberulous, the pedicels 5-9 mm long green or purple, puberulous; calyx lobes subequal, lanceolate to ovate, 2-2.4 × 0.5-1.4 cm, acuminate, serrate, with subulate teeth, light green, veined or spotted with purple, puberulous to strigose on both sides; corolla oblique, almost horizontal in the calyx, infundibular, 6-7 cm long, spurred, cream white to light yellow, proximally puberulous, distally hirsute, the limb light lemon yellow, inside glabrous, the lobes unequal, rounded, erose, the 2 dorsal and the 2 lateral lobes ca. 1 × 1 cm, the ventral lobe 1-1.5 × 1.5-2.1 cm, the tube inside ventally with a nectar-guide of red or maroon lines and dots, dorsally with short, glandular trichomes; stamens 4, included, the filaments adnate for 1 cm to the base of the corolla, connate into a sheath for ca. 1.5 cm, totally ca. 3 cm long, white, glabrous, the anther coherent, saggitate, each anther 5.2 × 2 mm, the thecae parallel, dehiscing by a basal pore; ovary ovoid, laterally compressed, 6 mm long, white, puberulous, the style ca. 3 cm long, white, glandular pubescent, the stigma stomatomorphic; nectary reduced to a large, double-connate, dorsal gland, 3 × 3 mm, reddish, glabrous. Fruit a bivalved display capsule, the carpel walls inside red; seeds globose, 0.8 mm in diam., light brown.

TYPE: *PANAMA:* PANAMA: El Llano - Cartí highway, 10-12 km N of El Llano, epiphyte, 2 March 1974, *R. L. Dressler 4619* (HOLOTYPE: SEL).

DISTRIBUTION: Endemic to eastern Panama, in the Provinces of Colón and Panamá.

ADDITIONAL MATERIAL EXAMINED: *PANAMA:* COLON: Lower Río Guanche, near Portobelo, epiphyte, 5 Jan. 1973, *Dressler 4240* (SEL, US); PANAMA: La Eneida, region of Cerro Jefe, epiphytic shrub, flowers pollinated by female *Euglossa asarophora*, 1 Jan. 1968, *Dressler 3300* (SEL); Cerro Jefe, summit area, epiphyte on a newly fallen, large tree, 11 Aug. 1971, *Wiehler & Dressler 71191* (SEL) El Llano - Cartí highway, about 8 km N of El Llano, 11 Nov. 1974, *Dressler 4764* (MO, SEL); along newly cut road to Cartí - Tupile (in San Blas), ca. 16 km above Pan American highway, 13 March 1973, *T. B. Croat 22849* (MO, SEL).

The pollination of *Drymonia dressleri* by females of *Euglossa asarophora* Moure & Sakagami has been observed by Dr. Dressler in 1968 (cf. *Dressler 3300*, above).

23. **Drymonia microphylla** Wiehler, sp. nov. (Plate 2:D)

Ab affini *D. serrulata* (Jacq.) Mart., foliis coriaceis, subtus brunneolis ubi exsiccatis, calycum lobis subaequalibus ovatis acutis serratis et manifeste cristatis, corollarum lobis omnibus erosis marronino-guttatis, et ovariorum stylis glabratis non glanduliferis recedit.

Perennial vine, either shrubby, with stiff ascending branches, or thin-stemmed, clinging and climbing, with adventitious roots on nodes and internodes; stems 1-10 m long, up to 6 mm in diam., (but in prolonged juvenile form ca. 1.3 mm in diam.) freely branching, reddish brown, puberulous near the apex, glabrescent or sparsely pilose below, the internodes 0.5-6.6 cm

long; leaf pairs subequal, the petiole 0.3-1.3 cm, green, puberulous to sericeous, the lamina obovate to elliptic, 1-1.5 × 0.5-0.7 mm in juvenile leaves, 4.5-5.5 × 2-3 cm in adult leaves, leathery, medium to dark green and sparsely strigillose but appearing glabrous above, light green (but appearing brown when dry) and strigillose along the veins below, the lateral pairs of veins 3-5. Inflorescences reduced to solitary, axillary flowers, the peduncle and bracts absent, the pedicel 1-1.5 cm long, green, puberulous to hirsute; calyx lobes subequal, ovate, ca. 3 × 2 cm, acute, serrate, proximally cristate, green, sometimes with maroon veining, hirsute and pilose on both sides; corolla oblique in the calyx, campanulate, 4-5 cm long, the spur fleshy, lemon-yellow, the tube lighter yellow, hirsute, the limb inside deep lemon-yellow, speckled with maroon, glabrous, the lobes unequal, rounded, erose, the 2 dorsal and 2 lateral lobes ca. 1.2 × 1.2 cm, the ventral lobe ca. 1.8 × 1.8 cm, the tube inside yellow, with a ventral nectar-guide of 7 maroon lines, dorsally with capitate glandular trichomes; stamens 4, included, the filaments adnate for 3 mm to the base of the corolla tube, ca. 2.3 cm long, white, glabrous, the anthers coherent, saggitate, each anther 6 × 2 mm, the thecae parallel, dehiscing by a basal pore; ovary ovoid, laterally compressed, ca. 6 mm long, reddish, puberulous, the style ca. 2.3 cm long, glabrescent, the stigma bilabiate, the ventral lobe enlarged; nectary reduced to a double-connate, dorsal gland, reddish, glabrous. Fruit a bivalved display capsule, lemon-yellow when immature; seeds not seen.

TYPE: *PANAMA:* PANAMA: Between Cerro Azul and Cerro Jefe, shrubby vine, corolla yellow, streaked with maroon, 28 Aug. 1971, *R. L. Dressler 4093* (HOLOTYPE: SEL; ISOTYPES: PMA, US).

DISTRIBUTION: Endemic to eastern Panama, known only from the region of Cerro Jefe.

ADDITIONAL MATERIAL EXAMINED: *PANAMA:* PANAMA: Cerro Jefe, ca. 1000 m alt., forest edge & road bank, 29 July 1967, *Dwyer & Gauger 7382 (COL*, MO, UC); Cerro Jefe, cloud forest, vine, leaves dark green, corolla yellow, streaked and spotted with maroon, 6 Aug. 1968, *Dressler 3575* (SEL); same area, in dark forest, juvenile form creeping on tree trunk and fallen logs, sterile, 11 Aug. 1971, *Wiehler & Dressler 71173* (SEL); same area, liana up to 10 m long on tree trunk, juvenile form, 11 Aug. 1971, *Wiehler & Dressler 71187* (SEL); same area, on old tree stump, fully exposed to sun, in flower and fruit (immature), 19 May 1972, *Wiehler & Dressler 72280* (SEL).

This species appears to retain or revert to its juvenile form in cultivation (at SEL, since 1972). The leaves remain small, and no flowers have been produced in 6 years. The closest relative of *Drymonia microphylla* is *D. serrulata* which occurs also on Cerro Jefe [cf. *Wiehler & Dressler 71187A* (SEL)] and in the surrounding region. The type illustration shows the differences in the calyces of both species, as found on Cerro Jefe.

Another related species is *D. alloplectoides* Hanst. which occurs also on Cerro Jefe. This species differs from *D. microphylla* by its woolly stems, entire calyx lobes, and pink corolla which is also dissimilar in texture and shape.

24. **Drymonia pilifera** Wiehler, sp. nov. (Plate 3:A)

Nulli arcte affinis. Fortasse *D. variegatae* Uribe approximata, a qua rece-

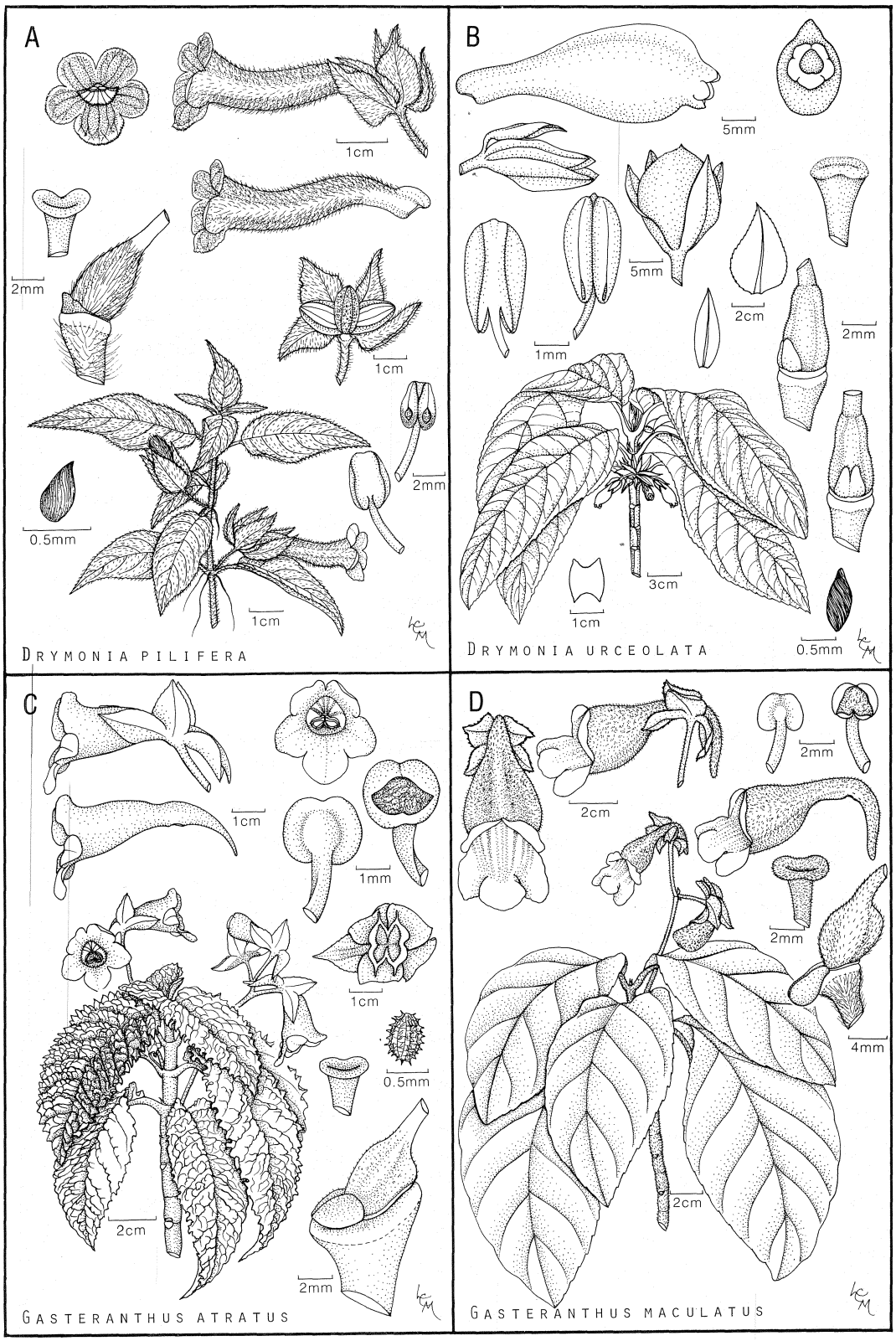

A
1cm
2mm
1cm
2mm
0.5mm
1cm
DRYMONIA PILIFERA
B
5mm
5mm
2cm
2mm
1mm
3cm
1cm
0.5mm
DRYMONIA URCEOLATA
C
1cm
1mm
1cm
0.5mm
2cm
2mm
GASTERANTHUS ATRATUS
D
2mm
2cm
2mm
4mm
2cm
GASTERANTHUS MACULATUS

Plate 3

dit caulibus hirsutis, foliis non bullatis hirsutis, calycibus ovatis hirsutis, et corollis hirsutis lobis non fimbriatis.

Perennial vine with adventitious roots on nodes and internodes, or epiphytic shrub; stems 1-3 m long, 3-6 mm in diam., freely branching, tan, hirsute, the internodes 3-8 cm long; leaf pairs subequal, the petiole 0.5-3 cm long, green, hirsute, the hairs (on all plant parts) either hyaline or wine-red, the lamina lanceolate-ovate to elliptic, 6-12 × 3-5 cm, acuminate, crenate, dentate, or serrate, obtuse at the base, chartaceous when dry, light green with hyaline hairs or bluish green with wine-red hairs above, pale green to deep wine-red below, hirsute on both sides, the lateral pairs of veins 5-7. Inflorescences reduced to solitary, axillary flowers, the peduncle absent, the bracts filiform, 3-5 × 0.6 mm, green, hirsute, the pedicels 1-2 cm long, pale green, hirsute; calyx lobes subequal, ovate, 2-2.5 × 1-1.7 cm, acuminate, serrate, yellow-green, sometimes spotted with wine-red, hirsute on both sides; corolla almost horizontal in the calyx, tubular-infundibular, the spur wine-red, the tube curved, ca. 4.5 cm long, cream white to pinkish red, woolly hirsute outside, the lobes subequal, ca. 8-10 × 8-11 mm, rounded, erose, brick-red with maroon veins and white borders, the tube inside with maroon lines and blotches, glabrous, dorsally with capitate, glandular trichomes; stamens 4, included, the filaments adnate for 7 mm to the base of the corolla tube, ca. 3 cm long, white, glabrous, the anthers coherent, saggitate, each anther 3.2 × 2 mm, the thecae parallel, dehiscing by a basal pore bordered with wine-red; ovary ovoid, laterally compressed, ca. 5 mm long, wine-red, sericeous, the style ca. 1.8 cm long, wine-red, glabrous, the stigma bilabiate, white; nectary reduced to a double-connate, dorsal gland, 2 × 3 mm, maroon, glabrous. Fruit a bivalved display capsule, the horizontal carpel walls outside pink, hirsute, inside red-purple, with a cone-shaped, glistening mass of white and rose placental tissue, funiculi, and purple-black seeds; seeds elliptic, 0.6 × 0.3 mm, smooth, brown when dry.

TYPE: *PANAMA:* VERAGUAS: Guabal (Río Dos Bocas), about 16 km NW of Santa Fé, ca. 500 m alt., seed of the collection *Dressler 4786*, sown 22 Nov. 1974, cult. at SEL greenhouses, acc. no. W-2008, seedlings of a single capsule with leaves either light green on both sides, or bluish green/wine-red, or intermediate, first flowers 20 Sept. 1975, herbarium specimens prepared 29 Oct. 1975, *Wiehler 75272* (HOLOTYPE: SEL; ISOTYPES: BH, F, K, MO, NY, PMA, U, UC, US).

DISTRIBUTION: Panama: Coclé, Veraguas, Bocas del Toro; Costa Rica: Heredia.

ADDITIONAL MATERIAL EXAMINED: *PANAMA:* VERAGUAS: type locality, cited above, vine, 15-16 Nov. 1974, *R. L. Dressler 4786* (SEL); same locality, 30 March 1975, *Dressler 5020* (SEL); 15-20 km NW of Santa Fé, between Escuela Agrícola Alto Piedra and continental divide, 650-800 m alt., vine, 8 Sept. 1974, *Dressler 4735* (SEL); valley of Río Dos Bocas, 11 km from Escuela Agrícola Alto Piedra, on road to Calovebora, 450 m alt., primary forest along river, epiphytic shrub less than 1 m long, 30 Aug. 1974, *T. B. Croat 27511* (MO); N of Santa Fé, ca. 2 km N of Escuela Agrícola Alto Piedra, rooting at nodes, 17 Oct. 1974, *Mori & Kallunki 2594* (MO, SEL); COCLE: near Aserradero El Copé, ca. 9 km N of El Copé, 850-900 m alt., very wet cloud forest, vine, 12 Aug. 1977, *Dressler 5676* (SEL); cult. at SEL, greenhouse acc. no. W-2534, from cuttings collected by *Dressler & N. H. Williams s.n.*, 9 April 1978, near El Copé, herb. spec. prepared 26

Aug. 1978, *Wiehler 78134* (SEL), BOCAS DEL TORO: between Quebrada Menaco and Buena Vista on Chiriqui Trail, transition between premontane forest and cloud forest, epiphyte, 17 April 1968, *Kirkbride & Duke 675, 676* (MO); *COSTA RICA:* HEREDIA: near Tirimbina, E of Río Sarapiquí, 10° 24' N, 84° 7' W, 150-250 m alt., remnant forest, now being logged, climber in shrubs and small tree, 12-15 Aug. 1971, *W. C. Burger & M. Burger 8046* (MO).

25. **Drymonia urceolata** Wiehler, nom. nov. (Plate 3:B)

Hypocyrta macrophylla Poeppig, *in* Poeppig & Endlicher, Nov. Gen. et Sp. Pl. 3:3. 1840; non *Drymonia macrophylla* (Oerst.) H.E. Moore, Baileya 3(3):109. 1955.

Habitu plantae *D. turrialvae* Hanst. et *D. sulphureae* Wiehler similis, sed inter species generum corolla urceolata valde distincta.

Perennial, terrestrial herb or subshrub, usually 0.6-1 m tall, occasionally 2-3.7 m tall, rarely branching; stems succulent, winged, rectangular in cross-section, ca. 2 × 1.5 cm, light green, spotted with wine-red, or completely wine-red, glabrous, the internodes 2-6 cm long, the narrow and broad sides of the 4-sided stems alternating from node to node; leaf pairs equal to subequal, the petiole succulent, 3-16 cm long, 1-2 cm in diam., light green, spotted with wine-red, or completely wine-red, glabrous, with 2 prominent adaxial ridges, the lamina elliptic or ovate, 20-35 × 12-20 cm, leathery, acuminate, dentate, obtuse, medium or dark green and shiny above, pale green or wine-red below, glabrous on both surfaces, the lateral pairs of veins 6-10. Inflorescences axillary cymes of 4-6 flowers, the peduncle absent, the prominent prophylls ovate, ca. 5 × 3 cm, acuminate, serrulate, the subtending bracts lanceolate, ca. 4 × 1.5 cm, bracts, pedicels and calyces wine-red, maroon, or green, puberulous, the pedicels ca. 1 cm long; calyx lobes subequal, lanceolate, ca. 2 × 0.5 cm, acuminate, subentire; corolla nearly erect in the calyx, urceolate, ca. 4 cm long, with a small spur, wine-red, orange-red, or yellow, rarely white, puberulous, the narrow limb yellow, the lobes subequal, ca. 2 × 3 mm, rounded, entire, the tube inside glabrous; stamens 4, included, the filaments adnate for 4 mm to the base of the corolla tube, ca. 2.5 cm long, proximally flattened, white, glabrous, the anthers coherent, saggitate, each anther 5 × 2.5 mm, the thecae parallel, dehiscing by a basal pore; ovary ovoid, ca. 4 mm long, white, puberulous, the style ca. 2.5 cm long, white, puberulous, the stigma stomatomorphic; nectary reduced to a double-connate, dorsal gland, ca. 2 × 2 mm, white, glabrous. Fruit a subglobose, pointed berry, ca. 1.5 cm in diam., with a leathery skin, yellowish or wine-red, puberulous; seeds oblong, 1 × 0.4 mm, striate, brown, borne on and covered by aril-like, fleshy funiculi.

TYPE: *ECUADOR:* PASTAZA: woods ca. 3 km outside Puyo, near Río Pindo Grande, terrestrial, largest plants ca. 1 m tall, stems and petioles wine-red, bracts and calyx deep wine-red to maroon, corolla orange-red, limb yellow, 31 July 1971, *Wiehler 7162* (HOLOTYPE: SEL).

DISTRIBUTION: Peru: Ayacucho, Junín, Huanuco, San Martin, Amazonas; Ecuador: Zamora-Chinchipe, Morona-Santiago, Pastaza, Tungurahua, Napo; Colombia: Caquetá.

ADDITIONAL MATERIAL EXAMINED: *PERU:* DEPT. AYACUCHO: Prov. La Mar, E. side of Cordillera Central, ca. 73° 47' W, 12° 42' S, 1360-1400 m alt.,

dense rainforest, plants 2 m tall, corolla orange, 19 Aug.1968, *T. R. Dudley 11874* (NA, US); DEPT. JUNIN: Pichis Trail, San Nicolas, ca. 110 m alt., dense forest, corolla orange-red, 4-5 July 1929, *Killip & Smith 26045* (NY, US); DEPT. HUANUCO: Hacienda Pampayacú, at mouth of Río Chinchao, forest, *Poeppig* (*s.n.*?) (W, type of *Hypocyrta macrophylla* Poeppig, but type specimen not found at W in 1975; Field Mus. type photo, no. 32797, states type locality as Cuchero, nearby); same locality, ca. 1200 m alt., corolla red, 19-25 July 1923, *J. F. Macbride 5069* (F); SAN MARTIN: La Divisoria., road from Pumahuasi to La Cumbre, 1600-1660 m alt., herb, 1 m tall, bracts and calyx magenta, corolla light red, 26 June 1978, *T. Plowman & J. Schunke V. 7375* (F, SEL); DEPT. AMAZONAS: Prov. Bongará, hills 1-5 km SSE of Yambrasbamba, 2100-2400 m alt., climbing tree trunk in most high forest, rare, corolla yellow, 25 June 1963, *Wurdack 1041* (US); *ECUADOR:* ZAMORA-CHINCHIPE: 3 km E of Tambo, ca. 1 m high, corolla yellow, 24 July 1959, *Harling 6080* (S); locality not cited, *Poortmann s.n.* (P); near Valladolid, deep forest, 1800-2000 m alt., corolla rich yellow, 13 Oct. 1943, *Steyermark 54641* (F), near Zamora, calyx green, corolla orange-red, 13 Jan. 1976, *M. Madison 2388* (SEL); seed of same material cult. at SEL, greenhouse acc. no. W-2222, herb. spec. prepared 28 Aug. 1978, *Wiehler 78135* (SEL, to be distributed); MORONA-SANTIAGO: valley of Río Tintas, between Paute and Méndez, moist forest, 2195 m alt., calyx and bracts rich yellow, 13 July 1943, *Steyermark 53569* (F, US); same area, valley of Río Negro, trail between Mirador and Pailas, 2010-2255 m alt., corolla yellow, 9 Sept. 1943, *Steyermark 54283* (F, US); Cordillera de Cutucú, western slope, along a trail fron Logroño to Yaupi, ca. 2° 46' S, 78° 06' W, 700 m alt., terrestrial herb 1 m tall, bracts and calyx red, corolla orange, Nov. 1976, *Madison et al. 3158, 3268* (SEL); vicinity of Huamboya, between volcanos Sangay and Altar, 2000-2600 m alt., bracts and calyces green and wine-red, corolla red, 13 Feb. 1944, *M. Acosta Solis 7378* (F); same area, 1500-2000 m alt., 15 Feb. 1944, *Acosta Solis 7407* (F); PASTAZA: Mera, ca. 1000 m alt., bracts, calyx and corolla red, 3 Feb. 1956, *E. Asplund 19194* (S, 2 sheets); road Puyo to Puerto Napo, at km 35, rainforest, ca. 700 m alt., bracts, calyx and corolla wine-red, 15 July 1967, *B. Sparre 17513* (S); TUNGURAHUA: between Río Mapoto and Río Margarjitas, 1230 m alt., *Penland & Summers 287* (F, US); NAPO: between Tena and Napo, forest, herb, 1.5 m high, bracts and calyx wine-red, corolla red, 4 Oct. 1939, *Asplund 9048* (S); region of Cerro Antisana, E of Borja, 2000 m alt., primary montane forest, robust herb to 3.7 m tall, bracts and calyx deep magenta, corolla orange, 28 July 1960, *P. J. Grubb et al. 1062* (BH); Canton Quijos, ca. 8 km E of Baeza on road to Lago Agrio, ca. 1800 m alt., at margin of forest remnant, shrub 2 m tall, bracts, calyx, and corolla red, 29 July 1874, *T. Plowman et al. 3914* (SEL); *COLOMBIA:* CAQUETA: region of Florencia, Río Hacha, near Cajón de Pulido, 1700 m alt., shrubs 1-3 m tall, bracts, calyx and corolla red, 26 March 1940, *Cuatrecasas 8745* (US), *8750* (F, US).

26. **Gasteranthus atratus** Wiehler, sp. nov. (Plate 3:C)

A speciebus aliis generis foliis supra negris nitidis bullatissimis glabris facile distinguitur.

Terrestrial or saxicolous, perennial herb; stems erect, sparsely branching, to 30 cm tall, dark green, puberulous, the internodes 1-5 cm long; leaf

pairs equal or unequal, the latter caused by the crowding of the shoots, the petiole 1.5-2.5 cm long, dark green, suffused with purple, puberulous, the lamina obliquely lanceolate, 12-17 × 6-7 cm, acuminate, undulate-serrate, oblique, leathery, deeply bullate, above dark green appearing black, shiny, glabrous, below rose-purple, puberulous, the secondary pairs of veins 10-12, the stomata aggregated into islands, with 50-120 stomata per island. Inflorescences axillary cymes of 2-6 flowers, the peduncle 4-5 cm long, the pedicels 2-4 cm long, both light green suffused with purple, glabrous, the bracts absent; calyx lobes subequal, ovate, ca. 2 × 1.5 cm, acuminate, subentire to weakly denticulate, the dorsal lobe enveloping the large floral spur, light green suffused with bronze, outside glabrous, inside with capitate glandular trichomes; corolla almost horizontal in the calyx, infundibular, with the spur (= ca. 2.3 cm long), about 7 cm long, lemon-yellow, glabrous, the limb bilabiate, the lobes entire, the 2 dorsal lobes ca. 0.8 × 1.5 cm, the 2 laterals and the ventral lobe ca. 1.2 × 1.4 cm, the inside of the tube glabrous, dorsally furnished with 6 prominent, longitudinal, maroon stripes (faint ventral stripes visible in some corollas), the spur inside puberulous; stamens 4, included, the white filaments adnate for 1 cm to the base of the corolla tube, ca. 2 cm long, proximally thick, fleshy, and papilose, distally thinner and glabrous, the anthers coherent into a square, each anther 2 × 2 mm, the thecae confluent; ovary ovoid, ca. 4 mm long, laterally compressed, white, puberulous, the style ca. 1.8 cm long, white, glabrous, the stigma stomatomorphic; nectary reduced to a large, bilobed dorsal gland, 3 × 3 mm, about 1/3 the size of the ovary, grey, pubescent. Fruit a fleshy, pale yellow, 4-valved capsule, the septicidal dehiscence somewhat incomplete, forming a flat bowl, with the calyx lobes horizontal and reflexed; seeds oblong, 0.5 × 0.3 mm, brown, covered with spine-like projections, attached to thread-thin, hyaline funicles ca. 1 mm long.

TYPE: *ECUADOR:* PICHINCHA or LOS RIOS: Montañas de Ila, cloud forest along ridge line near La Centinella at km 12 on road from Patricia Pilar to Flor de Mayo, 600 m alt., terrestrial, in deep shade, live plants collected by M. Madison in April 1977, by C. H. Dodson in Aug. 1977, cultivated at SEL greenhouses, herbarium specimens prepared 16 Nov. 1978, *H. Wiehler 78166* (HOLOTYPE: SEL; ISOTYPES: AAU, BH, F, K, NY, QCA, S, U, US, others to be distributed).

DISTRIBUTION: Endemic to western Ecuador, known only from the foot hills of the Andes near the Río Palenque Biological Station.

ADDITIONAL MATERIAL EXAMINED: *ECUADOR:* PICHINCHA or LOS RIOS: type locality: 16 July — 11 Aug. 1977, *C. H. & H. C. Dodson 6838* (SEL).

Gasteranthus atratus has a euglossophilous type of corolla which emits a fragrance of Ocimine in the afternoon. At least three other species of *Gasteranthus*, all with red and pouched hummingbird corollas, are sympatric with *G. atratus* in the Montañas de Ila: *G. carinatus* Wiehler, *G. macrocalyx* Wiehler, and *G.* sp. (*pubescens* Wiehler, ined.). The epithet *atratus* (= dressed in black, from the Latin *ater*) alludes to the unusual leaf color of this new species. *Gasteranthus atratus* is a stunningly beautiful gesneriad with great horticultural potential.

27. **Gasteranthus maculatus** Wiehler, sp. nov. (Plate 3:D)

Gasterantho delphinioidi (Seem.) Wiehler affinis, sed foliis ovatis, corollarum calcaribus tubisque dorsaliter maculatis, et nectariis fere glabris notabilis.

Terrestrial, perennial herb; stems erect, sparsely branching, to 20 cm tall, light green, villous, the internodes 1-4 cm long; leaf pairs equal or unequal, the latter caused by the crowding of the shots, the petiole 0.5-1.2 cm long, light green, sericeous-villous, the lamina ovate, 13-20 × 7.5-10 cm, acute, dentate-serrate, obtuse, leathery, shiny, dark green, and sparsely pilose above, pale green and sericeous-villous below, the secondary pairs of veins 5-7, the stomata aggregated into islands, with 40-90 stomata per island. Inflorescences axillary cymes of 2-6 flowers, the peduncle and the pedicels each ca. 3 cm long, yellow-green with a rose flush, sparsely sericeous, the bracts absent; calyx lobes subequal, ovate, ca. 2 × 1.8 cm, acuminate, denticulate-serrulate, light yellow-green, puberulous-sericeous outside, with capitate glandular trichomes inside; corolla horizontal in the calyx, infundibular, ca. 7 cm long, white, glandular pubescent, the spur ca. 2 cm long, the back of the tube and the spur spotted with wine-red, the limb bilabitate, the 2 dorsal lobes ca. 0.6 × 1.8 cm, the 2 laterals and the ventral lobe ca. 1.8 × 1.4 cm, all lobes entire, the tube inside white, papilose and glandular pubescent, ventrally yellow, with 9 conspicuous, longitudinal, wine-red lines, dorsally with shorter lines radiating from the base of the tube, the spur inside papilose-puberulous; stamens 4, included, the filaments adnate for 6 mm to the base of the corolla tube, proximally thick, fleshy, and papilose, distally thinner, laterally flattened, and partially puberulous, ca. 2 cm long, white, the anthers coherent into a square, each anther 2 × 2 mm, the thecae confluent; ovary ovoid, ca. 4 mm long, laterally compressed, white, puberulous, the style ca. 2 cm long, white, puberulous, the stigma stomatomorphic; nectary reduced to a large, bilobed, dorsal gland, 1/3 the size of the ovary, white, sparsely pubescent. Fruit capsule not seen.

TYPE: *PANAMA:* DARIEN: Cerro Pirre, northern site, cloud forest, on E side of ridge, ca. 1050 m alt., live plants collected by R. L. Dressler in July 1977, cultivated at SEL greenhouses, first flowers produced in Aug. 1978, herbarium specimens prepared 16 Nov. 1978, *H. Wiehler 78167* (HOLOTYPE: SEL; ISOTYPES: K, MO, PMA, US).

DISTRIBUTION: Known only from Cerro Pirre in eastern Panama.

This species is closely related to *Gasteranthus delphinioides* which occurs also on Cerro Pirre, with a strong lemon yellow corolla, the tube inside ventrally with red lines. In other collections from eastern Panama the corolla of *G. delphinioides* is white, with the same red lines in the throat; the type collection from Cabo Corrientes, Chocó, Colombia is reported to have a pale blue corolla.

28. **Monopyle grandiflora** Wiehler, sp. nov. (Plate 4:A)

Inter species generis calycum lobis longioribus et corollis majoribus (limbis 4 cm in diam.) differt.

Terrestrial, perennial herb; stems erect or ascending, branching, to 60 cm tall, maroon, puberulous, the internodes 3-9 cm long, somewhat swollen; leaf pairs unequal, the petiole of the larger leaf of a pair ca. 3 cm long, maroon, puberulous, the lamina obliquely ovate or lanceolate, 11-18 × 5-8 cm, acuminate, serrate, oblique, green, puberulous and sparsely scabrous above, green, suffused with purple (or completely purple) and puberulous below, the secondary pairs of veins 8-10, the smaller leaf of a pair similar, the lamina ca. 5 × 3 cm. Synflorescence a bracteose thyrse (sensu Troll), with 2-4

flowers per cyme unit, the bracts, prophylls, and subtending bracts subulate, 4-7 × 1.2 mm, maroon, puberulous, the peduncles ca. 1.5 cm long, the pedicels 1-3 cm long, both maroon, puberulous; hypanthium at anthesis ca. 5 mm long, the calyx lobes subequal, narrowly lanceolate, 1.7-1.9 × 0.2 cm, green, puberulous; corolla almost erect in the calyx, campanulate, ca. 3.2 cm long, the tube white, suffused with lilac near the limb, puberulous, the limb ca. 4 cm in diam., deep blue (R. H. S. Colour Chart: Violet-Blue Group 93A), the lobes subequal, ca. 1.5 × 2 cm, entire, glabrous inside, the throat white, the tube inside ventrally with 2 grooves, lemon-yellow, glabrous, dorsally white, spotted with blue, the base ringed with blue, the dorsal side and the base area furnished with capitate, glandular trichomes; stamens 4, included, the filaments adnate for 1 mm to the base of the corolla tube, ca. 1.2 cm long, reddish, pilose near the base, the anthers coherent into a square, each anther 2.5 × 2.5 mm, the thecae parallel, dehiscing by longitudinal slits; ovary almost completely inferior, oblong, for 1.2 mm free from the calyx, sericeous, the style 5-6 mm long, red, puberulous, the stigma stomatomorphic; nectary ring-shaped, thin, non-functional. Fruit an elongated capsule, 1.5-2 cm long, at right angle to the pedicel, with a single, longitudinal, loculicidal slit on the upper side, offering the seed as in the upturned palm of a hand; seeds black oblong, ca. 0.3 × 0.2 mm with wart-like protuberances.

TYPE: *PANAMA:* DARIEN: Cerro Pirre, 1200-1400 m alt., 16 July 1977, live material of the collection *Dressler 5670* (SEL), cultivated at SEL greenhouses, herbarium specimens prepared 21 Nov. 1978, *Wiehler 78168* (HOLOTYPE: SEL; ISOTYPES: K, MO, NY, PMA, US).

DISTRIBUTION: Known only from the type locality in Darién, Panama.

ADDITIONAL MATERIAL EXAMINED: *PANAMA:* DARIEN: Serranía de Pirre, trail on main ridge, ca. 1 km from Cerro Pirre summit, occasional in cloud forest, 14 July 1977, *R. Hartman & J. Folsom 4591* (RM, SEL); same area, trail ca. 2-3 km due S of Cerro Pirre, near summit of second peak, occasional, 20 July 1977, *Hartman & Folsom 4712* (RM, SEL).

The large, deep blue and white flowers of this species justify its introduction to cultivation.

29. **Nautilocalyx colonensis** Wiehler, sp. nov. (Plate 4:B)

Ex affinitate *N. panamensis* (Seem.) Seem. sed foliis bullatis subtus lanatis, corollis longioribus dorsi-ventraliter compressis, tubis intus marronino-maculatis, et staminum filamentis ovariorumque stylis pilosis diversus.

Terrestrial, perennial herb; stems erect, ascending or repent-ascending, to 25 cm tall, succulent, rooting by nodes and internodes, green or flushed with maroon, velutinous; leaf pairs equal to subequal, the petiole 3-4 cm long, maroon, velutinous, the lamina ovate, 8-16 × 5-10 cm, acute or acuminate, crenate, obtuse, bullate, medium green, and hirsute above, lighter green and wooly-tomentose below, the secondary pairs of veins 7-8. Inflorescences axillary cymes of 2-6 flowers, the peduncle ca. 3-5 mm long, the prophylls and subtending bracts linear-lanceolate, ca. 10 × 2 mm, green with maroon tips, velutinous, the pedicels ca. 1 cm long, maroon, velutinous; calyx lobes lanceolate, subequal, ca. 1.8 × 0.6 cm, green and suffused with maroon, or completely maroon, velutinous; corolla oblique in the calyx, tubular-infundibular, ca. 5 cm long, spurred, white, the tube dorsi-ventrally compressed, pilose, the limb ca. 2.8 cm in diam., with a faint lilac tinge, glabrous,

the lobes subequal, ca. 1.2 × 1.6 cm, entire, the tube inside with ca. 15 longitudinal maroon lines, dorsally with glandular trichomes, ventrally with 2 longitudinal ridges; stamens 4, included, the filaments adnate for 3-5 mm to the base of the corolla tube, ca. 2.6 cm long, white, proximally pilose, the anthers coherent into pairs, each anther 3 × 2 mm, the thecae dehiscing by longitudinal slits; ovary ovoid, 4 mm long, white, hirsute, the style ca. 2.8 cm long, proximally pilose, the stigma bilobed; nectary reduced to a double-connate, dorsal gland, 2.5 mm long, white, glabrous. Fruit a fleshy, bivalved capsule.

TYPE: *PANAMA:* COLON: Río Escandaloso (tributary of Río Boquerón), near Mina no. 2, 130-150 m alt., live material of the collection *Dressler 5817* (SEL), cultivated at SEL greenhouses, acc. no. W-2573, herbarium material prepared 24 Aug. 1978, *Wiehler 78137* (HOLOTYPE: SEL; ISOTYPES: BH, K, MO, NY, PMA, US).

DISTRIBUTION: Apparently endemic to Panama, known only from the type locality.

ADDITIONAL MATERIAL EXAMINED: *PANAMA:* COLON: type locality: 20 May 1978, *R. L. Dressler 5817* (SEL).

The genus *Nautilocalyx* is now represented by five described species in Panama: *N. colombianus* Wiehler, *N. colonensis*, *N. dressleri* Wiehler, *N. panamensis (Seem.) Seem., and N. speciosus* Wiehler, A sixth, orange-flowered species from Darién will be described later, after live material has bloomed in the SEL greenhouses.

30. **Dalbergaria madisonii** Wiehler, sp. nov. (Plate 4:C)

Ab affini *D. erica* (Mansf.) Wiehler caulibus tenuioribus, prophyllis minoribus, pedicellorum callis rubris, corollis aurantiacis, limbis minus obliquis, et staminum filamentis pilosis recedit.

Epiphytic, perennial herb or subshrub; stems erect, ascending or spreading, sparsely branching, to 1 m tall, 6-10 mm in diam., green or flushed with maroon, tan near the base, sericeous, the internodes 3-9 cm long; leaf pairs very unequal, the petiole of the larger leaf of a pair 5-9 mm long, green, sericeous, the lamina of the larger leaf oblanceolate, 14-18 × 6-7.5 cm, acuminate, crenulate-serrulate, or subentire, oblique, shiny green and finely sericeous but appearing glabrous above, light green, with a red apex, and sericeous below, the secondary pairs of veins 9-10, the lamina of the smaller leaf similar, ca. 2 × 1 cm. Inflorescences reduced axillary cymes of 1-4 flowers, the peduncle absent, the prophylls lanceolate, ca. 10 × 4 mm, green, sericeous, the subtending bracts ca. 5 × 2 mm, the pedicels 7-10 mm long, yellow-green, sericeous, with a ring of bright red calluses at the base of the receptacle; calyx lobes subequal, lanceolate, ca. 1.8 × 0.5 cm, with a prominently raised midvein, acuminate, serrate, ciliate, yellow-green with red blotches, shiny sericeous-pilose; corolla erect in the calyx, tubular, ca. 5.2 cm long, sericeous-pilose, the spur yellow, the tube orange, the limb oblique, yellow, the face of the limb furnished with capitate glandular trichomes, each lobe of the galea 3 × 4 mm, the lateral lobes triangular, ca. 5 mm long, the ventral lobe reflexed, ca. 6 × 5 mm, the throat marked with deep red, the sinuses by the ventral lobe callused, deep red, the tube inside pilose; stamens 4, exserted, the filaments adnate for 1 mm to the base of the corolla tube, ca. 3.8-4.1 cm long, yellow, sparsely pilose, the anthers coherent into a rectangle,

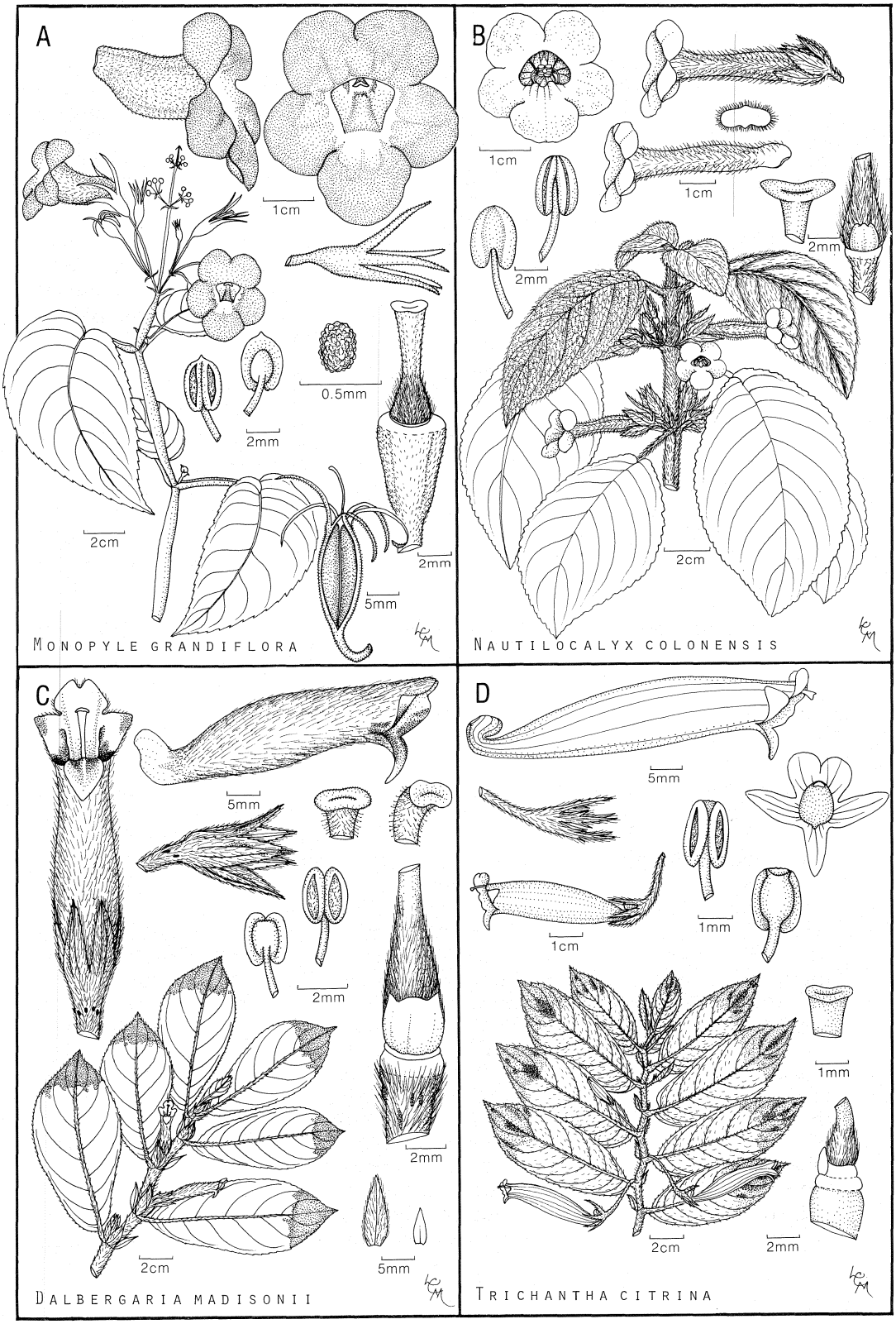

A
1cm
0.5mm
2mm
2cm
2mm
5mm
MONOPYLE GRANDIFLORA
B
1cm
1cm
2mm
2mm
2cm
NAUTILOCALYX COLONENSIS
C
5mm
2mm
2mm
2cm
5mm
DALBERGARIA MADISONII
D
5mm
1mm
1cm
1mm
2cm
2mm
TRICHANTHA CITRINA

Plate 4

each anther 2 × 2 mm, the thecae dehiscing by longitudinal slits, the pollen grains prolate spheroidal; ovary ovoid, 4 mm long, green, sericeous, the style ca. 4.3 cm long, white, glandular-pilose, the stigma bilobed; nectary reduced to a double-connate, dorsal gland, 3 × 3 mm, white, glabrous. Fruit not seen.

TYPE: *ECUADOR:* MORONA-SANTIAGO: Cordillera de Cutucú, 25 km SE of Logroño, ca. 1000 m alt., live material collected by M. Madison in Nov. 1976, cultivated at the SEL greenhouses under acc. no. W-2420, herbarium specimens prepared 30 Aug. 1977, *Wiehler 77133* (HOLOTYPE: SEL; ISOTYPES: AAU, F, K, NY, QCA, S, US).

DISTRIBUTION: Apparently endemic to Ecuador, known only from the type locality.

The specific epithet honors Dr. Michael T. Madison who, although an authority on the Araceae, has collected many gesneriads on his field trips to the tropics.

The campanion species of *Dalbergaria madisonii*, *D. ericae* (Mansf.) Wiehler, has a wide distribution on the eastern slope of the Andes in Ecuador and occurs also in the Cordillera de Cutucú [*Madison et al. 3190* (SEL)]. The corolla of the latter is bright lemon-yellow, with a larger, more oblique limb; the calluses of the receptacle are pink.

31. **Trichantha citrina** Wiehler, sp. nov. (Plate 4:D)

Trichanthae mirae (Morley) Wiehler aemulans, differt caulibus sericeis, foliis ellipticis, subtus sericeis, pedicellis sericeis, et corollis citrinis extus glabrescentibus intus glabris.

Epiphytic, perennial herb; stems ascending, spreading, or descending, freely branching, to 50 cm long, 3-6 mm in diam., green or reddish, older parts tan, sericeous, the internodes 1-3 cm long; leaf pairs very unequal, the petiole of the larger leaf of a pair 3-5 mm long, green, sericeous, the lamina of the larger leaf elliptic, 7-10 × 3-4 cm, acuminate, serrate, oblique, above green and hirsute, below green suffused with brick-red, near the apex blotched and spotted with red, sericeous, the secondary pairs of veins 6-9, the lamina of the smaller leaf of a pair similar, ca. 1 × 0.4 mm. Inflorescences reduced axillary cymes of 1-2 flowers pendent horizontally below the foliage, the peduncle, prophylls, and subtending bracts absent, the pedicels ca. 2-3 cm long, green, sericeous; calyx lobes subequal, narrowly lanceolate, 1 × 0.2 cm, acuminate, with a pair of subulate teeth, 2-3 mm long, near the base of each lobe, sericeous-pilose; corolla oblique in the calyx, with the corolla tube at a right angle to the pedicel and the base of the tube abruptly bent adaxially toward the spur, ca. 5.5 cm long, lemon-yellow, glabrescent, the limb oblique, the 2 lobes of the galea each ca. 5 × 4 mm, the 2 laterals and the ventral lobe each ca. 9 × 5 mm, all lobes entire, the tube inside glabrous; stamens 4, exserted, the filaments adnate for 1 mm to the base of the corolla tube, ca. 5 cm long, yellow, glabrous, the anthers coherent into a square, each anther 1.5 × 1.5 mm, the thecae dehiscing by longitudinal slits; ovary ovoid, 4 mm long, green, sericeous, the style ca. 5.2 cm long, glabrous, proximally white, the upper half pink, the stigma stomatomorphic, white; nectary reduced to a double-connate, dorsal gland, 2.5 × 2.5 mm, white, glabrous. Fruit not seen.

TYPE: *PANAMA:* DARIEN: Cerro Pirre, cloud forest, live material collected by R. L. Dressler in July 1977, cultivated at SEL greenhouses, acc. no. W-

W-2451, herbarium specimens prepared 21 Nov. 1978, *Wiehler 78169* (HOLOTYPE: SEL; ISOTYPES: BH, F, K, MO, NY, PMA, US).

DISTRIBUTION: Apparently endemic to eastern Panama, known only from the type locality.

This species is closely related to the Panamanian *T. mira* (Morley) Wiehler from Cerro Tacarcuna (Darien) and Cerro Jefe (Panamá), and to *T. cerropirrana* Wiehler from Cerro Pirre. The type illustration of the latter in Selbyana 2(1):131, Plate 36:A, 1977, depicts an immature corolla, as found on the type specimen. A recent introduction of live material of this species from the type locality reveals that the corolla lobes are much longer when fully developed, as seen in Figure 94 on page 22 of this volume.

More new species of neotropical Gesneriaceae, present in the gesneriad greenhouse of the Marie Selby Botanical Gardens, will be published in subsequent issues of Selbyana.

ACKNOWLEDGEMENTS

I wish to thank the curators of the herbaria cited for the generous loans of specimens of Gesneriaceae for this study. I also want to thank the various collectors cited in the pages above for their efforts to bring back live gesneriads from the field for study at Selby Gardens. To Lisa Megahee and Sharon Boothe I am grateful for the excellent diagnostic line drawings of flowers and of new species in this issue.

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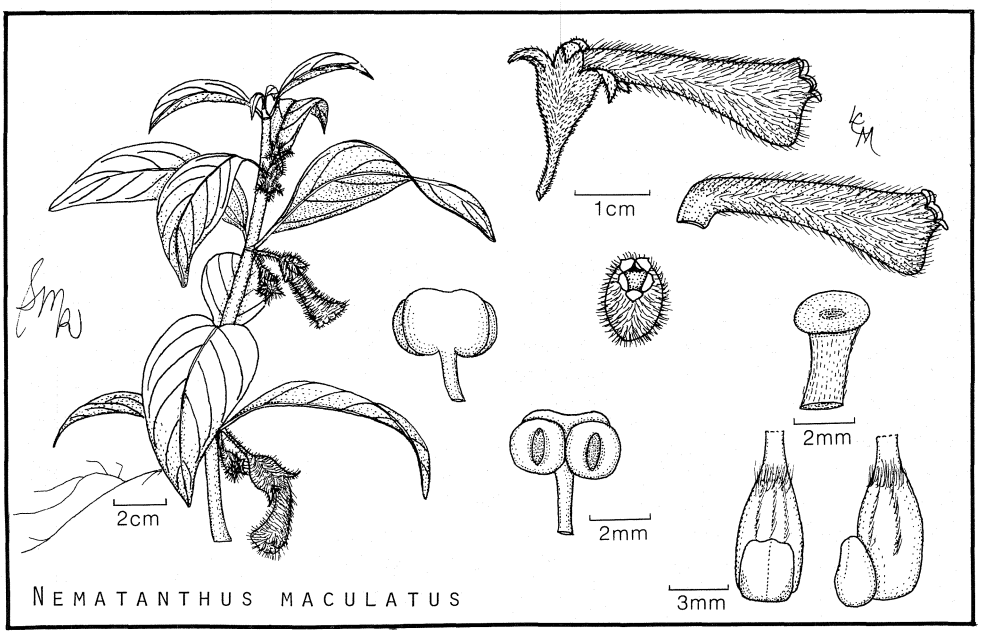

Figure 7, page 63